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New York Medical Journal

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WHOLE No. 1896.

Original Communications.

THE MODERN TREATMENT OF DIABETES MELLITUS.*

With Especial Reference to the von Noorden Method.

BY JAMES TYSON, M. D.,
Philadelphia.

I have selected this subject, not because anything new has been of late suggested to make the treatment of diabetes more efficient, but because the administration of the newer dietetic treatment for which we are largely indebted to von Noorden has resulted in a complexity which is trying to doctor and patient. I thought I might be of service in simplifying it and thus making it more feasible.¹

It is not necessary to define diabetes. It will, however, aid me in carrying out my purpose to follow Naunyn and von Noorden and subdivide the disease into three rather arbitrary divisions: 1. Slight or mild cases; 2, transitional or semisevere cases; 3, really severe cases. The boundary between transitional and severe cases is not very sharp.

1. *Slight cases.* It is important to insist that there are many mild cases which if not capable of actual cure may be so controlled that the patient is practically as well off as if nothing was the matter. These patients are generally over fifty years old, the quantity of sugar is small and easy of elimination. To be successfully treated, they should be recognized early. To insure success sugar must be kept permanently absent from the urine, and even transitory reappearance must be avoided if possible. Von Noorden maintains that not enough stress is laid on this requirement, hence the failure to cure cases otherwise curable. I am sure I labored under this error, having often said if the quantity of sugar did not exceed two per cent. it did not much matter. I am no longer satisfied with such a result if I can do better, because if these cases are left alone, they are sure to pass over into the severer forms. The treatment consists in the strict elimination of carbohydrates from the food. And although acetonuria and acidosis are favored by a too rigid elimination of carbohydrate food in diabetes, especially if withdrawn rapidly, this does not matter in mild cases "in which dangerous degrees of acetonuria need not be feared," as it is only transient. The ordinary

strict noncarbohydrate diet is commonly sufficient to keep the sugar out, and often a small amount of carbohydrate may be allowed, while as time elapses the quantity may be gradually increased without the sugar reappearing, and thus make a cure possible. Even in such cases, after the sugar is removed, a strict diet should occasionally be followed at intervals for a short time. The rationale of cure is as follows: The more or less total elimination of carbohydrates from the food rests the "sugar factory" as von Noorden calls it, and gives it a chance to recuperate and resume function.

2. *Transitional cases.* I am sure some will be surprised to learn that von Noorden is much more liberal in the severer cases, "more liberal," he says, "perhaps than the majority of physicians." He does, however, "try at first to render the urine free from sugar by cutting out the carbohydrates and at the same time reducing the proteins, and very often by employing the so called 'oatmeal' cure and the 'fasting day' as additional measures." He says, moreover, that it is surprising how often the severe form of glycosuria can be converted into a milder form, though no light task, and he further says he should never undertake the risks of carrying out the necessary dietetic measures except in a sanatorium. This is a disappointment to us in America where sanatoria of the kind scarcely exist. In this, however, according to my experience, he is not entirely correct, although the difficulties of the home treatment are very great. Not only is the dietetic treatment more difficult to carry out, but the dangers of acidosis, acetonuria, and diabetic coma are more difficult to combat.

When sugar is not removable by the simple carbohydrate diet, von Noorden resorts to an important step in treatment which is comparatively modern. This consists in *reducing the proteins in addition to cutting out the carbohydrates*, and employing the so called "oatmeal cure" as an additional measure. Both these measures cause a further reduction of sugar, and very often when this plan is pursued for a sufficient time, the severe form of glycosuria is converted into a slighter form and these cases thus converted are called "transitional." They also belong to the severest cases until such conversion has been accomplished. It is in these cases, too, that a dangerous acetonuria threatens, which may be avoided if foresight is used in directing treatment.

"It is just in these cases that we sometimes get brilliant results by interposing from time to time periods of diet composed exclusively of oatmeal or some similar food, accompanied and followed by two or three days of green vegetable food and eggs. By following out this dietetic plan quite systematically

*Read before the Section in Medicine of the College of Physicians of Philadelphia, February 27, 1915.

¹In this paper I have made free quotations from von Noorden, because my object was largely to present his views.

we shall find that in time—perhaps after three or four weeks or longer—the glycosuria will diminish and ultimately disappear. Although the patient is on a diet absolutely free from carbohydrates, except on the days when he takes oatmeal, the amount of acetone bodies in the urine is diminished, and the reaction with chloride of iron disappears. Encouraged by this pleasing result, we leave the patient on absolutely strict diet, not only for a few weeks, but also during many months. He does well and puts on weight. Later on, when we add carbohydrates to the diet, we find that small quantities can now be borne without causing sugar to be excreted. We have achieved our aim—the originally obstinate case of *severe* glycosuria has been converted into a *slight* type.

When it is clearly impossible to convert a severe diabetes into a slight one, use what pains and care as to detail we may, the time has come for the employment of still milder measures. The condition is one of permanent, irremediable overstimulation of the 'sugar factory,' and it makes little difference whether the patient excretes two thirds to one ounce of sugar under the very strict diet, and while suffering the greatest inconvenience, or whether he excretes one and two thirds to two ounces under a safe and easily tolerated diet. In the latter case, it is easier to secure a sufficient total of calories, since large quantities of fat can be supplied with the prescribed allowance of carbohydrates. On the other hand, von Noorden considers that it is most helpful to make an occasional break in the liberal dietary by interposing days in which the claims on the 'sugar factory' are reduced to the smallest possible. These, he says, 'are days of recuperation for the sugar factory, what Sundays do for the body and soul, coming in, as they do, between the working days of the week.'"

Three degrees of these days of abstaining may be distinguished: A. Days of simply strict diet—that is, when carbohydrates are excluded, but proteids permitted. B. Days of vegetable diet or green days when only bacon, butter, and a few eggs are taken beside green vegetables. C. Fast days, in which only weak tea, lemon squash, or whisky and soda is allowed. On such days von Noorden is in the habit of ordering also rest in bed to reduce the total production of calories, and thereby the claim made on the sugar factory is reduced to the smallest amount possible. He says there are but few diabetics who do not become sugar free on these days, and there is commonly a large fall in the acetonuria.

Fast days, combined with the bed rest are well borne, and the patient's strength is scarcely diminished by them. I used to be afraid of these days, but I am so no longer. A patient with a bad case of this kind now under treatment says he is always better after a fast day and rest in bed. Another important result is also claimed, viz., an immediate and well marked rise of tolerance. There is no hard and fast law to govern us in the selection of cases or to teach us how these days of abstaining are to be distributed. It is only by taking into consideration the special conditions of each case that we can decide whether we can confine ourselves to the milder restrictions, or whether we must occasionally call to our aid the most rigid kind, namely the single days of fasting, or the oatmeal day.

The following are some examples of dietaries from von Noorden (*New Aspects*, p. 93):

I.

Six days' restricted diet—3 ounces bread (or equivalent).
One day restricted diet alone—no bread.
Five days' restricted diet—3 ounces bread.
One vegetable-egg day—no bread.
The same scheme begins anew.

II.

Five days' restricted diet—3 ounces bread.
One day restricted diet alone—no bread.
One vegetable-egg day—no bread.
Five days' restricted diet—3 ounces bread.
Two vegetable-egg days—no bread.
The same scheme begins anew.

III.

Five days' restricted diet—3 ounces bread.
Two vegetable-egg days.
Five days' restricted diet and 3 ounces bread.
One vegetable-egg day—no bread.
One fasting day—no bread.
The same scheme begins anew.

IV.

Six days' restricted diet—3 ounces bread.
One vegetable-egg day—no bread.
Six days' restricted diet—3 ounces bread.
One vegetable-egg day—no bread.
Five days' restricted diet alone.
One vegetable-egg day—no bread.
One fasting day.
The same scheme begins anew.

It is not necessary to weigh foods, at least after the first few days. It must be remembered that these measures are not always successful in mildening a case, but are sufficiently so to make them a valuable aid toward successful treatment. They are approved by Naunyn (*Diabetes Mellitus*, p. 373) as well as von Noorden. I have associated von Noorden's name so closely with the fast day as perhaps to have given rise to the impression that it originated with him, but I am inclined to think that Naunyn had as much to do in bringing it forward.

The reader will doubtless have noted some signal points of difference in the treatment outlined, compared with what has been taught prior to the last few years. Thus he will have noted the absence of any mention of gluten bread or gluten foods. This has been brought about by two causes. In the first place the number of so called gluten foods is legion and a considerable number of the legion are frauds. Second, we have learned that greater accuracy may be often obtained by using the ordinary white bread and reducing the quantity until we reach a proportion which the patient can consume, or ascertain that even the total exclusion of carbohydrates does not entirely remove the sugar, bringing us thus to the severe cases which have been alluded to. It is because of cases like these that I should not be willing, however, to do without the breads and biscuits low in carbohydrates, of which we now have a considerable number which are reliable, for they still have their place in cases where breadlike foods are demanded and yet ordinary white breads dare not be allowed in any quantity.

Again the reader will have noted, perhaps with some surprise, that not only cutting out carbohydrates is advised, but proteins also are excluded, at least so far as represented by meat. Such an exclusion is followed by a recuperating power on the part of the system to oxidize more carbohydrates.

Note again that not all proteids are omitted, but simply those represented by meat. Egg and vegetable and casoid proteids are still permitted, including special foods, such as glidine, plasmon, roborat, rice albumin. The free use of fats in the shape of cream and butter is allowed. By such a diet the sugar is reduced in severe cases when a strict carbohydrate diet alone will not reduce it. One or two such days are intercalated.

The reader will have noted, too, the greater stringency of the strict diet in mild cases than was formerly advised, and the insistence that this diet should be continued for some time even after sugar is removed, with occasional remission in the strictness.

A few words on the "oatmeal" or carbohydrate cure of von Noorden. Fifteen years ago, he made the discovery that under certain circumstances large quantities of oatmeal could be tolerated by diabetics, from which he has evolved the "oatmeal cure" first against great opposition, while within the last five years he says its usefulness has often been overestimated. Moreover, he emphatically states that the "oatmeal cure" is not to be regarded as a panacea for diabetes. The effect is to reduce the acetone as well as sugar, thus diminishing the danger of acidosis. However, do not continue too long the oatmeal days. Never for more than three days in succession should it be used, but it is often necessary to let a single fast day precede the oatmeal day, or we may let a vegetable or fast day follow the oatmeal days and then begin the oatmeal period anew. On oatmeal days, broth, English sauce, red wine, cognac, tea, coffee, bouillon, and the juice of fresh lemons are permitted.

No satisfactory explanation has been furnished of the results. Other carbohydrates answer if the precaution is observed of first reducing the sugar as much as possible. Potato, barley meal, banana meal, pea meal, and even apples have been used. Only temporary use should be made of these methods of cure and they should be inserted between periods of stricter diet. In the slighter forms, also, where as much as three ounces of bread can be borne, such attempts at cure are useless. Indications are not very clear and experience is necessary. Use, however, only one kind of carbohydrate at a time. Oatmeal is the best, and American oatmeal seems to be preferred by von Noorden. Small amounts of oatmeal (twenty-five grams) are often not well borne when combined with meat, and when meat is withdrawn, ten times as much oatmeal has been well tolerated. Edema sometimes follows on the oatmeal treatment, but soon passes away with a few doses of theocin or diuretin.

Oatmeal is prescribed by von Noorden in two forms—an oatmeal gruel and an oatmeal porridge:

Oatmeal gruel (thin). Half a pound of oatmeal is cooked about two hours on a moderate fire, with six to eight pints of water and the necessary quantity of salt. If prescribed, three ounces of roborat, glidine, rice albumin, etc., may be added. When the gruel is done, add ten ounces of butter and pass through a sieve. Divide the whole into eight parts and take one part every two hours, the portion being warmed each time before taken. This manner of preparation is intended for American oats. A por-

tion of the oats may be eaten as porridge, usually taken twice during the day.

Oatmeal porridge. Mix one ounce of oats with two ounces of water, soak over night. The next day add three to five ounces of water and steam two hours. Half an hour before it is finished add two and one half ounces of butter—for porridge take only Scotch or American oats.

TREATMENT.

Of acidosis. The primary acetone bodies are diacetic or acetoacetic acid and beta oxybutyric acid from which acetone is probably formed as a secondary product. They are regarded as formed for the most part in the liver, from the lower fatty acids of which the daily metabolism is very large. To a much less degree they are formed from the amidofatty acids. Their proper metabolism depends upon the cooperation of the carbohydrates in the food, the withdrawal of these being followed by the appearance of acetone bodies in the urine. They continue to increase considerably until the carbohydrate is added to the food. "Fats are burned in the fire of the carbohydrate" is a graphic statement, not altogether correct, but it emphasizes the fact of the dependence of acetone metabolism upon carbohydrate metabolism.

Notwithstanding our efforts to the contrary, acetone, diacetic acid, and oxybutyric acid accumulate in the blood of many patients and become a source of danger. Fortunately we have a class of remedies which neutralize these poisons, although they are not capable of preventing their production. These are the alkalies, especially sodium bicarbonate. Very large quantities are given by some, as much as an ounce to two ounces a day. Von Noorden does not advise such large doses, but still gives more than I do, say half to two thirds of an ounce in a day. I seldom give more than a dram or a teaspoonful three times a day, but in nearly all cases where decided acidosis is present, I give it nearly continuously. As to its mode of administration, von Noorden gives seventy-five grains the first thing in the morning, seventy-five grains just before bedtime in a glass of plain or aerated water, the remainder dissolved in a bottle of mineral water during the day, being very careful to avoid meal times. I find that American patients can rarely bear the large doses advised to foreign patients. The citrates of potassium and sodium are more palatable than the carbonate and less disturbing to the stomach; somewhat larger doses are required. The latter has the advantage of being slightly laxative, and looseness of the bowels is helpful in diabetes, while constipation is harmful. In my experience almost all constipated cases do badly. Magnesium and calcium may also be used, the former where there is constipation, the latter where there is diarrhea. Castor oil is a suitable aperient and may be given daily in proper doses.

It has been intimated that the stomach sometimes rebels against these large doses of soda. In such event the colon previously well cleared out becomes available when the "drop enema" of Murphy may be used. In the form of three per cent. solution, as much as forty to fifty grams of sodium bicarbonate (one and one third to one and two thirds ounce) may be thus used without causing irritation. Intravenous

injections are also available. Somewhat stronger solutions are used, 3.5 to four per cent. of the sodium carbonate in the same manner as salvarsan. These later methods are of course reserved for severer cases, when diabetic coma is threatening or actually present, when some remarkable results have followed. In my experience they are, however, temporary.

In the matter of diet in the stage of incipient coma, all restrictions, except as to pure sweets, are removed. The free use of milk at this stage, six to eight ounces every two hours, is recommended by some, but von Noorden has been disappointed; if obtainable, sugar free milk may be used. On the other hand, he avers that he has tided over cases by an exclusive diet of oatmeal preparations. Again he advises no food, but large quantities of whiskey well diluted, three to five-ounces daily. He calls these days "alcohol days," and says it is astonishing how well such quantities are borne even when the patient is not accustomed to them. It is followed by large reduction of ketonuria and the general condition of the patient is greatly improved. These alcohol periods are continued one to two days until improvement sets in, when they are followed by milk and oatmeal soups. After this a gradual return is made to the diet of chronic diabetes. Now and then in a long while a case is snatched from the jaws of death under these circumstances. Other narcotics, like opium, chloroform, and ether, increase the acidosis.

By drugs. As to medicines in the earlier stages of diabetes, they have not much value, still less in the later stages. Their utility has been for the most part determined empirically. They include a great many: Salicylates, antipyrine, bromides, and other nervous sedatives, veronal, opium, codeine, pantopon, jambul, and others. As in other obscure diseases, there are also many secret remedies, some of which may have a slight value, fortified by some ingredient of greater value. Why salicylates are of any use, I do not know, but it is true that their administration is followed at times by a temporary reduction in the amount of sugar in the urine, especially in cases where there is much muscular pain. Opium and its alkaloids, morphine, codeine, and heroine, are undoubtedly effective, probably because of their sedative effect, lowering the stimulus sent down from the central nervous system to the "sugar factory." The bromides may act similarly. On the other hand, the opiates generally constipate, and constipation is a drawback to successful treatment, while the possibility of acquiring the opium habit must always be borne in mind. Hence I put them off until last.

I have more than once been charged with not giving jambul the credit it deserves. One enthusiastic physician showed me a prescription, which had not only jambul but also codeine and antipyrine in each pill! I have never found it of any use when taken alone. Diet is generally associated with these secret remedies and becomes a helper.

On the other hand, I am sure arsenic is of some value in a few cases, why, I do not know. I have shown this many times by noting the reduction of sugar in the urine during its administration, and a return of the sugar when the drug is discontinued. In other cases it has been entirely without effect. Again, if a glycosuria is produced by a syphilitic

brain tumor, of course iodide of potassium will reduce it; but such an affection can hardly be called diabetes mellitus. In prescribing arsenic, it is better to give doses so small that they may be kept up continuously, rather than large doses that must be interrupted by the physiological effect.

Certain mineral waters have a reputation. Such are Carlsbad, Neuenahr, Vichy, and a host of others, most of which are without effect. Those which are effectual in a degree are alkaline and are pretty well covered by the first three mentioned. Their operation is probably similar to that of the sodium carbonate already described. They should be freely drunk. Additional effect is doubtless produced by the diet provided at the various springs and the relaxation due to absence from the cares and responsibilities of business life.

An important measure in the treatment of diabetes is rest, especially in bad cases. Its efficiency is easily shown by uranalysis, before and after a rest of a couple of days in bed.

1506 SPRUCE STREET.

GROWTH AND OVERGROWTH.*

BY PAUL G. WOOLLEY, M. D.,

Cincinnati,

Professor of Pathology, University of Cincinnati; Director of the Pathologic Institute, Cincinnati General Hospital.

Overgrowth—hyperplasia—is an evidence of growth. "Physiologic growth is the natural type of the pathological new formations" (Cohnheim).

When a cell, an organ, an organism, increases in size, we say it grows. Why does it grow? What is growth? We hear it said by one or another writer that the conditions of growth lie within the cells; by another, that they lie without the cells; by a third, that they are both without and within the cells. We speak of the environment as the sum of the influences which act from without, and we are able, in a measure at least, to recognize certain of the factors in the environment. The internal conditions which make for growth are summed up in the generalization of *productive power* or *capacity for growth*. It is this power or capacity that is held to account for the phenomena observed, for instance, in the cells of the embryo in its earliest stages, during which, in the absence of a nervous system, and in the presence of a sufficient supply of nourishment, they grow and gradually produce an autonomous organism. It is this *capacity for growth* which, in the course of development of certain cells, becomes more or less completely lost as they become so completely necessary to the economy in a functional way that they lose their ability to reproduce and respond to stimuli only by increased function, never by increase in number. By external conditions—by environment—we mean all influences of a physical or chemical nature which give rise to any change in cellular activity. In the case of cells which are able to grow and which have also a physiological function to subserve in the organism, stimulation may result in growth or in increased functional activity. In cells which have none but a physical function, stimulation

*Read before the Cincinnati Academy of Medicine, February 15, 1915.

results only in growth. In other cells, like those of the central nervous system, which have lost the power of growth, stimulation results only in functional activity.

Suppose you isolate a cell from its environment—cut off all stimuli and remember meanwhile that food is a stimulus. Let us postulate that the cell we isolate is one in which the power of growth is present. What happens to such a cell? Nothing. It remains passive till it dies. Suppose you give it just enough food to keep it in equilibrium as we call it. Then what? It remains passive. Take a cell which has no capacity for growth—a ganglion cell—and stimulate it. It does not grow. In the first instance, with the power of growth present in the cell, no growth is obtained without the intervention of environmental influences. In the second, the environmental influences can cause no growth.

For mere retention of life a certain amount of nutriment is necessary. For activity, more food is required. If we say that for mere persistence, sufficient food is necessary, then we may say that for activity a more than sufficient food supply is required. In other words, for growth and for functional activity the amount of food must be equal to the resting requirements of the cells and also to the additional requirements. The case of a cell or group of cells within an organ and their demands is similar to the case of the embryo in the uterus of the mother. Not only must the parent provide food for herself, but for the fetus also. The food stuffs furnish the source of energy for response to stimuli, and if the stimuli recur then more food is necessary, since more energy is required. We may say, therefore, that, in respect to growth, this phenomenon occurs only when there is demand for growth, by which we mean, that the cell is acted upon by a physical or chemical stimulus. If the food supply (i. e., the source of energy) is not sufficient, the cell *cannot* respond. Of course, if the stimulus is not strong enough, it creates no demands and the cell *does not* respond.

We have said nothing of the *intrinsic capacity for growth*. It seems a most unsatisfactory term, and yet it has grown into the literature so solidly that it cannot be removed. Perhaps it is useful if we know what we mean by it. I, for instance, suspect that it is merely the expression of the effects of chemical changes which go on within the cells because of the instability of the substances of which protoplasm is made up, and which make it necessary that a streaming into the cell take place, a result of which is, in the normal course of events, existence. Stimulation of the protoplasm increases the chemical changes, and more rapid absorption is brought about, and since at the termination of stimulation the chemical activities do not immediately cease (the law of overcompensation), slight additions to the volume of the cells occur, and they increase in size, and then we speak of growth.¹

At the beginning of the life of an individual every cell has the capacity for growth, and some of the cells of the body preserve this quality during the entire period of existence. On the other hand, some lose it. Early in life every cell has the possibility

of becoming a functioning cell like those of the cerebral cortex, or of becoming a vegetative cell like those of connective tissue. Some cells preserve both capabilities. Those which do none of these things, disappear. But those cells which are able both to grow and to function chemically, can do but one thing at a time. While they grow they do not function, and while they are producing secretions or responding functionally to stimuli, they do not grow or reproduce. Furthermore, in the course of development of tissues and organs the certain groups of cells come to be reactive to certain types of stimuli, and since the *power of growth* is in all this, it is worthy of consideration. A connective tissue cell which certainly has the ability to grow, does not increase in size or reproduce, no matter what the food supply, unless the proper series of stimuli reach it—unless there is the need for growth (as after injuries), or an impulse to grow (as in fibromas). Were the internal conditions causative, why should vegetative cells stop growing? An egg cell, say of a frog, may be placed in a nutritive medium which will provide for life. Add to this a particle of some chemical substance and it grows even to the production of an embryo. The ability to grow is within the ovum, but the stimulus to exercise that ability is in the outside world. In the human body the thymus undergoes growth up to a certain age and then atrophies. And after atrophy has begun, all the nourishment that is offered it by the normal body will not cause it to recommence its growth unless a certain type of food, a chemical stimulus, which the other cells of the body no longer produce is offered. But take the serum of an individual in the "thymus period," and inject it into the individual (adult) whose thymus is undergoing involution, and growth again commences, and involution is retarded.² Mere abundance of food does not affect the growth of cells. It is the qualitative composition of the fluids of the body which calls forth reproduction. The thymus atrophies because the chemical stimulus which made it active is no longer present in the blood.³ Bones cease their growth because their development has produced a structure such that mechanical stimuli no longer influence them to grow. Weight upon the bones produces no stresses that stimulate its cell to do more than rest. But place unusual strain upon bones and unusual development will at once begin.

Give a muscle no exercise and it does not grow. Cause it to contract a few times a day and it holds its own. Increase its activity and it enlarges. And so one might go on, mentioning in turn all the organs. Evidently the cause of physiological (normal) growth is physiological (normal) stimulation, which results in increased metabolic activity, increased demands for supplies, and increased use of the supplies.

Here we immediately come upon the apparent fact that certain cells react only to certain stimuli, while other cells react to almost any stimulus. In other words, specific stimuli are necessary for cells

²Cf. Sabatini, *Policlinico*, Dec. 13, 1914. *Rev. Journal A. M. A.*, lxiv, 378, 1915.

³Perhaps also it atrophies because of inhibiting substances produced by other organs, for Fiore and Franchetti have shown (using rabbits) that thymus involution may be hastened by injecting adult serum. (Ref. Sabatini, *loc. cit.*)

¹Tissue inertia perhaps accounts not only for adaptations, but for variations and heredity peculiarities.

that have undergone development in certain directions. The substances to which the liver cells react to produce their secretions are not those to which the cells of the kidney react. Muscular exercise does not produce increased growth of any tissue except muscle.

It is really only physiological activity of any cell that conditions its growth or increased function, and it is only external effects that lead to increased activity. Increased activity makes for increased metabolism, which means increased waste and increased need of repair, and these mean increased demands upon the food supply. Without these increased demands there is no growth.

Growth then depends upon, 1, the ability to grow (i. e., a certain type of unstable constitution); 2, the stimulus to grow (i. e., the action of a force which increases, temporarily, at least, the instability); 3, a sufficient food supply. These three factors will form the basis of our discussion of overgrowth, because "physiologic growth is the natural type of overgrowth." The laws of physiology are the laws of pathology. It is, as Claude Bernard said, just as wise to distinguish laws of life under pathological conditions from life under physiological conditions, as it would be to distinguish the mechanical laws of a falling house from those governing a house which stands erect.

The phenomenon of overgrowth is one which we recognize in very many forms which vary according to our nomenclature from regeneration to tumors. We see it in healing of wounds, in exuberant granulation tissue, in the gravid uterus, in the heart under varying conditions, in the hollow viscera whose activities are modified by the presence of stenoses, in the bloodvessels in conditions of high arterial pressure, in the skeletal muscles under the influence of exercise, in glandular organs when a part of the functional tissue is damaged, and in certain other organs, which, while they appear unlike, are parts of correlated systems, and so correlated that an absence of one member of the system produces increased activity on the part of the other members. We see it in corns and calluses, in the fibroses, in the benign and malignant tumors.

It is customary to speak of work overgrowth, adaptive overgrowth, compensatory overgrowth, irritative overgrowth, nutritional overgrowth, inflammatory hyperplasia, and neoplastic growth. The only difference between these lies in the sort of stimulus which brings about the cellular reactions. In the cases of work, adaptive, compensatory, and vicarious overgrowth, the stimuli belong in the realm to which we apply the term "physiological." In the cases of irritative, inflammatory, or neoplastic growth, the stimuli belong in the category to which we apply the term "pathological."

There is no evidence that the cells which we study in the conditions we have mentioned are doing anything which they were not intended to do. The thing of which we do not approve (physiologically) is that they are growing too much at a time when growth does not seem to be a physiological necessity. The cells which illustrate this best are the cells of tumors, and the cells of certain organs such as the thyroid, which are responding to stimulation which is abnormal either in amount or in time. There is

no evidence, however, that the cells themselves under the influence of the stimuli which they receive are doing anything which they should not do in the circumstances—even in the case of tumors.

What may happen is that the sum of the cellular processes or the increased mass of the cells, of a tissue or an organ which the cells compose, acts to the disadvantage of the whole organism. It is in such a sense that overgrowths are pathological. All overgrowth is "adaptive."

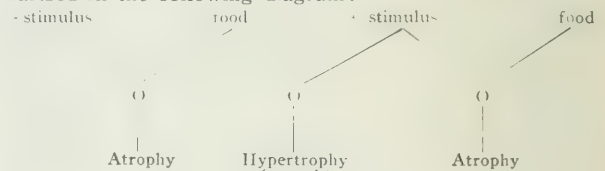
There are two main types of overgrowth. These we call hypertrophy and hyperplasia. With the former we associate increased *size* of cells (simple hyperplasia) and increased functional activity; with the latter, increase in the *number* of cells (numerical hyperplasia). Both may occur together.

Upon the basis of the preceding remarks the following schema may be used as an epitome:

OVERGROWTH RESULTS FROM PRIMARY INCREASE IN CELLULAR ACTIVITY.

- I.—Due to physical causes (strain, pressure, friction).
 - (a) Muscular hypertrophy (including cardiac hypertrophy, hypertrophy of hollow viscera following stenosis.
 - (b) Strain fibroses.
 - (c) Epithelial hyperplasias.
- II.—Due to chemical causes.
 - (a) Hormonal growth and overgrowth. (Mammary hypertrophy during pregnancy, hypertrophy of organs of internal secretion.)
 - (b) Compensatory hyperplasia.
 - (c) Vicarious hypertrophy.
 - (d) Tumors (?).

The whole material presented in this paper may be summarized in the following diagram:



REFERENCES:

ADAMI: *Principles of Pathology*, 1910. RITCHIE: *Pembrey and Ritchie's General Pathology*, 1913. WHITE: *The Pathology of Growth*.

SUBPECTORAL ABSCESS.*

With Report of Two Cases.

BY DAVID RIESMAN, M. D.,

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Subpectoral abscess is rare and little referred to by writers, but an experience with two cases has convinced me that it is a serious and important condition. I have looked over many textbooks, especially textbooks of surgery, and find it mentioned in only a few. A good account is given by Ashhurst (*Surgery—Principles and Practice*, 1914, p. 730), and there is also a short but clear paragraph in Brewer's *Textbook of Surgery* (1909).

The first symptom of subpectoral abscess is usually a sudden, intense, agonizing pain in the infra-clavicular region, increased by breathing and especially by motions of the arm. The temperature is high from the beginning—fever may even precede

*Read before the Section in Medicine, College of Physicians, February 26, 1915.

the onset of the pain—and prostration is marked. There is nothing to indicate the exact nature of the trouble, and the physician will think that the case is one of brachial neuritis, pneumonia, or pleurisy. On examination there is tenderness in the pectoral region in the second or third intercostal spaces. As time progresses the pain does not abate much, but rather increases, although tenderness to touch may not be marked. Palpation gives a sense of very deep fluctuation, which is so elusive that when different men examine the patient simultaneously they are apt to disagree about it. Coincident with the appearance of this deep seated fluctuation, the whole pectoral region becomes brawny and tense from the clavicle downward and outward toward the axillary fold. There was no enlargement, as I recall it, of the axillary glands in either of my cases. The fever is irregular and tends to be high throughout. The pulse is rapid, the face flushed. Delirium is present, chiefly nocturnal, sometimes diurnal, and the urine shows a high degree of toxic albuminuria. The leucocytes are considerably increased, especially the polymorphonuclear cells. In one of my cases a small pneumonic patch became evident near the angle of the scapula toward the end of the first week.

Regarding the etiology, there may be, as in some cases of delayed tetanus, no evidence of any portal of entry. In my first case it was only after careful inquiry that the fact was revealed that the patient had had a source of infection prior to the onset of the trouble. In the second, no cause could be discovered. Ashhurst believes that some cases are due to a slight trauma of the pectoral region with the production of a hematoma which subsequently becomes infected through the blood stream. Where the infection has a peripheral origin, it travels up the lymphatics to the glands of the pectoral region. It is said that infection from the thumb or index finger or the radial aspect of the forearm may pass directly to the pectoral nodes along the lymphatics accompanying the cephalic vein; in my case the infection took place in the ring finger, nevertheless it reached the pectoral glands direct, thus circumventing all the intervening lymph nodes.

There are two sets of lymph glands in the pectoral region—one the anteropectoral group situated over the second and third intercostal spaces beneath the lower border of the pectoralis major muscle and anterior to the long thoracic artery. The other is the inferopectoral group, composed of two or three small nodes situated either upon or posterior to the long thoracic artery over the fourth or fifth intercostal space or even higher.

The streptococcus is the organism usually found in subpectoral abscess, which explains the alarming character of the constitutional symptoms.

CASE I. Dr. X., seen through the courtesy of Dr. L. J. Hammond, on February 18, 1914, while operating in a case of septic peritonitis, pricked or scratched himself through the rubber glove in the left ring finger. On the following day there was a fine line of suppuration without pain or discomfort. He slit open this area and disinfected it with iodine and acetone. It healed so promptly that he gave it no further thought. On Saturday evening, February 21st, while examining candidates for internship, he felt himself getting very warm and found his temperature to be 103° F. After leaving the hospital, he ate a hearty supper, then took some salicylate of soda, and arose next morning with a normal temperature and feeling quite well. In the even-

ing he was called out, and just as he was in the act of putting on his coat, a sharp shooting pain struck him in the left pectoral region below the clavicle, and radiated into the shoulder. The pain was very severe and by the time he came home he could scarcely lift the arm from the side. During the night the temperature rose to 104° F. By morning he could not abduct the arm and any attempt at coughing or sneezing was agony to him. He was profoundly depressed, sleepless, and exceedingly irritable. When I saw him I found the left pectoral region of an almost boardlike hardness, scarcely tender to touch, and not very hot. The whole upper left chest wall was involved, the swelling extending outward toward the shoulder and the axilla, in particular filling out the hollow normally present below the acromial end of the clavicle. At first a small incision was made by Doctor Hammond, but it was evidently not deep enough, for no pus appeared, so a few days later, on March 7th, he made a second and deeper incision along the border of the pectoralis major, and through this considerable pus escaped. The patient's mind at once became clearer, but the high temperature persisted, though he felt well in every way, except that he was still troubled by persistent insomnia. The albumin disappeared from the urine. Upon the establishment of free drainage by means of a large rubber tube, the temperature gradually subsided; yet the patient remained extremely weak for a long time.

Two blood counts were kindly made by Dr. W. C. Albright—one on February 26th and one on March 2d: 1. Leucocytes, 16,350. Differential count: Polymorphonuclears, 87 per cent.; transitionals, one; large lymphocytes, 3; small lymphocytes, 8, and large mononuclears, one per cent. 2. Leucocytes, 15,200. Differential count: Polymorphonuclears, 93 per cent.; large lymphocytes, 2; small lymphocytes, 4, and mononuclears, one per cent. Blood culture was sterile, but the pus from the abscess yielded the streptococcus in pure culture.

CASE II. Mrs. B. Z., married, a native of Russia, aged forty years, was seen in consultation with Doctor Tonsky, on April 12, 1914. She had been perfectly well until three days before, when she was suddenly seized with intense pain in the right shoulder and back of head. Several severe chills occurred on the same day and were followed by profuse sweating. Her temperature in the beginning was 102° F. When I saw her it had reached 104° F. She looked very ill and was greatly prostrated. By a coincidence, which had served to confuse the diagnosis, her husband was lying in the same room with a severe acute attack of articular rheumatism. I found a diffuse fullness in the right pectoral region, which as in the first case was especially noticeable in the hollow in front of the shoulder. The swelling was very tender, but there was no local heat. Movement of the arm greatly increased the pain. I at once suspected subpectoral abscess, and with her physician's consent had the patient taken to the Polyclinic Hospital, where on April 18th, Doctor Jopson made an incision in the right pectoralis major. After splitting the fascia below the pectoralis minor, pus was reached and evacuated.

The blood examination made soon after admission gave the following result: Erythrocytes, 5,400,000; hemoglobin, 90 per cent.; leucocytes, 15,000; polymorphonuclears, 81 per cent.; transitionals, 3; lymphocytes, 4; large mononuclears, 12 per cent.; eosinophiles, 0; mast cells, 0; myelocytes, 0. Four days later, the leucocytes were 11,400. Blood culture remained sterile; the Wassermann reaction was negative. From the pus the streptococcus was isolated in pure culture.

REMARKS.

The constitutional symptoms of subpectoral abscess from the very beginning are out of proportion to the local manifestations. This is due to the fact that the streptococcus is the causative organism and that the free lymph circulation of the thorax permits of easy dissemination of the infection. In the first patient we several times despaired of a favorable outcome.

In the treatment of subpectoral abscess the question arises whether it is better to wait for definite localization of the pus or to make an incision as soon as the diagnosis is established. The question

can no doubt be settled best by surgeons, but I cannot refrain from saying that I believe it is wiser *not* to wait, but to make at once a free incision. The general medical treatment scarcely requires discussion, nor need I say anything about the use of vaccines. This latter question is sure to come up in every protracted case and has to be considered upon the general principles of vaccine therapy.

1715 SPRUCE STREET.

SUGGESTIONS AS TO BLOOD CULTURES.

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The first of the fluids of the body to be examined was the urine in the time of Hippocrates, and with the first two periods of historic medicine there were scientists who examined urine by the sun and a flask for the purpose of determining the nature of disease, independent of the odor and clarity of the urine. Then followed examinations of the feces and stomach contents, sputum, and ascitic, pleural, and cerebrospinal fluids. The systematic examination of the blood as a means of determining the nature of a disease was utilized last of all, and much more recently its bacteriological examination (Van Cott).

Of all the clinical methods, however, as yet devised for the purpose of diagnosis, prognosis, and treatment, there is no single method which finds so wide a range of usefulness and importance and gives results which are so definite as that of blood cultures. The general practitioner seldom avails himself of the method of culturing bacteria in the blood, its use being restricted mainly to hospital practice. This is due to the difficulty of procuring the blood. By the methods at present in use the process of obtaining blood is exceedingly cumbersome, and contaminations are frequent; one has to have special training in this line of work, otherwise the results are not only unreliable but even misleading.

While it is desirable that blood cultures should be performed by a bacteriologist, this is not absolutely necessary. The student in the modern medical school gets sufficient knowledge and training in bacteriology during his regular medical course to render him competent personally to avail himself of this important diagnostic procedure. Furthermore I believe that with a little practice, experience, care, and patience every physician can train himself to perform reliable blood cultures.

The most important step in blood cultures is the proper technic. The difficulties usually encountered in culturing blood for bacteria are four in number, namely, in, 1, obtaining the blood, 2, contaminations, 3, planting the blood on media suitable for the bacteria causing the particular blood invasion, and, 4, identification of the bacteria isolated.

Let us consider these four items in detail and suggest how to overcome them.

I. OBTAINING THE BLOOD.

The difficulties encountered in obtaining the blood arise from three sources, viz.: A, difficulty

in locating the vein; B, difficulty in piercing the vein, C, difficulty in aspirating a sufficient quantity of blood.

A. For the purpose of culturing the blood for bacteria, blood should be drawn from a suitable vein. I have found that the practice of jabbing the skin and obtaining capillary blood is exceedingly unsatisfactory, because it is almost impossible to obtain a sufficient quantity of blood, and because it is almost impossible to avoid contaminations; besides, it is associated with just as much or even more pain to the patient, and as it is obtained drop by drop it is time consuming and prolongs the agony. By this method the clotting of the blood as a rule takes place before the process is finished, which necessitates repeated jabbing and squeezing of the parts, thus making the procedure unsatisfactory to patient and operator.

Furthermore, blood should be drawn directly from a bloodvessel, because there is something in the tissues which activates thrombin and thus shortens greatly the coagulation time of the blood, which is an important factor in blood culture work. Blood touching tissues clots sooner than when it does not touch. Intima injury is tissue injury; therefore do not injure intima with the point of the needle any more than is absolutely necessary. This ferment in the tissue is termed kinase. Of course, it does not matter from what vein one obtains the blood. Any of the superficial veins of the body is available. As a rule, one will have no difficulty in finding a conspicuous superficial vein of medium or large size. The customary veins in adults are the medium cephalic or basilic at the bend of the elbow. If these are not distinct, prominent veins will usually be found in the lower extremities. The veins at the level and anterior and posterior to the internal and external malleolus should form the second choice. If these are indistinct, a vein of sufficient prominence and size can usually be found on the dorsum of the foot, or on the internal surface of leg or thigh, or on the anterior surface of the forearm. I emphatically advise against the selection of small veins, such as are found about the wrist, dorsum of the hand, sides of fingers, etc. No matter how distinct and promising they may appear, it will usually be found difficult to pierce their lumen, and still more difficult to obtain a sufficient quantity of blood. It is quite frequently amazing to see how veins which were small and indistinct or totally invisible will dilate and become prominent after hot applications. For this purpose I use a towel saturated with hot mercury bichloride solution, which is applied over the vein for three to five minutes prior to the puncture. This procedure not only dilates the veins, but also disinfects the skin. I have found that instructing the patient to make a fist and contract the muscles of the hand and forearm, makes the veins stand out more prominently. Furthermore, I believe that the wall of the artery can be pierced with a needle and blood obtained from this source, without any ill effects to the artery or danger of subsequent hemorrhage. For the purpose any of the medium sized superficial arteries of the body may be used. The artery of choice is the one at the bend of the elbow. I have repeatedly used this

artery without the slightest ill effects. There is no subsequent bleeding or aneurysm formation. The arteries can be readily located by palpation and frequently by sight. Whatever has been said of adults holds good of children. In children, however, it is more difficult to obtain blood, for the veins are smaller and less conspicuous.

An important factor in the localization of an invisible vein is the use of the sense of touch. One can quite frequently distinctly feel rolling beneath his finger tips an adipose covered vein, which is invisible to the eye.

Incision over veins.—In obese individuals and in children, when it is impossible to locate a vein of sufficient size by the sense of sight or touch, one should not hesitate to make a small incision about one half an inch in length, under local anesthesia, over the veins at the bend of the elbow or at any other part of the body. Ethyl chloride spray makes a good local anesthetic for this purpose. One must always bear in mind that the anatomical location of the superficial veins is exceedingly inconstant, and therefore I advise that the incision be made diagonally rather than parallel with the supposed course of the vein. The reason for this is obvious, as it increases the chances of finding the vein, and at the same time gives sufficient room to obtain blood after locating the vein. After cutting through the skin, it is advisable to use blunt dissection in order to prevent cutting into the vein, which will be followed by useless and undesirable bleeding, which, however, is readily controllable by direct compression and is not at all dangerous. It is not necessary to bare the vein absolutely, for its blueness shines through and clearly outlines its course. Should the wall of the vein be injured with the knife and blood escape, I have found that it is much more expedient to ligate with catgut distal to the injury and make a fresh puncture with the needle immediately distal to the ligature and draw blood, rather than to try to collect the escaping blood from the traumatized vein. You will be able to collect but little of the escaping blood, and at the same time the loss of blood may be considerable in amount, and you have ideal chances for contamination. After obtaining a sufficient quantity of blood from the vein, you withdraw the needle and no further attention to the vein need be given, for there is no escape of blood through the puncture, which closes spontaneously. It is best to close up the skin incision with one or two sutures of plain catgut, as this minimizes the healing time and disfigurement from scarring. Of course, all this is performed with strict aseptic precautions.

The habit of incising over the veins at the bend of the elbow in every case for blood cultural purposes is not only unnecessary but positively wrong, for the following reasons: 1. The explanation given by those practising this custom is that they minimize contamination, which is plausible, but not exact. Comparisons made by the author in numerous cases of drawing blood from veins for cultural purposes, with and without incisions, has convinced him that there is absolutely no difference as far as the frequency of contamination is concerned. Disinfect your skin properly, and you will not obtain frequent contaminations. Certainly, no incision is

necessary from the standpoint of minimizing contaminations. This phase of the subject will be discussed fuller under contaminations. 2. Incisions inflict unnecessary pain and are time consuming. The pain from a needle puncture is comparatively slight. But, where cutting of the skin, searching for and isolating the vein, and finally suturing the skin are resorted to, this procedure becomes painful. The infliction of unnecessary pain spells ignorance, no matter where it occurs. 3. Incisions frighten the patient. The armamentarium necessary to perform this operation, such as knife, forceps, needles, ligature, etc., and the cutting, frighten the patient, who is quite frequently led to believe that an amputation of the arm or some other major operation is about to be performed, and all assurances to the contrary will frequently not change his mind, and the patient will refuse a blood culture. 4. Incisions always leave scars. I realize that these may be very marked or very slight. An incision over a vein at the bend of the elbow, however, or any other conspicuous part of the body usually to the lay people spells the administration of 606, a Wassermann reaction, or a gonorrheal complement deviation test. They are educated about these procedures by the public newspapers, public health bulletins, etc. Besides, these procedures are much more frequent than blood cultures, hence the lay people have perhaps heard about these and have seen the scars at the elbow, although they are ignorant of blood cultures. It is wrong to subject a patient from whom you have taken a blood culture to suspicion by lay people, of syphilis and gonorrhea. I emphasize this point, because I have been told by patients of their difficulties in this respect.

For the foregoing reasons, I do not believe in incising over a vein in every case of blood culture. The only indication for incision is when it is difficult or impossible to find a vein; otherwise, puncture the vein simply through the skin and subcutaneous tissue with the same needle.

B. Difficulties encountered in piercing the vein and how to overcome them. One sometimes meets an instance where the vein is large and prominent and yet it is difficult to obtain blood, particularly if the needle is somewhat dull. In my experience, this occurs only in lean individuals. It is due to the fact that no fat surrounds the vein, which eludes the needle prick by moving away from it, on account of its free play over the underlying tissues. When a prominent vein is imbedded in a moderate amount of fat, one does not meet with this difficulty; a sharp needle will go a long way to overcome it. Another important point in puncturing a vein for any purpose is first to puncture the skin and the subcutaneous tissues, and then the wall of the vein, and not try to do all at once. One will have much better success if this process is divided into two stages, for the reason that the skin is tough and it takes considerable force to penetrate it, and therefore one cannot well regulate the distance the point of the needle will travel. It may pass through the vein into the surrounding tissues. Another way to prevent pushing the vein in front of you by the needle, is to penetrate the skin, and then hold the vein by placing the finger outside it, so that the vein is between the point of the needle and the finger. A short, quick, and sharp push of the needle

will now invariably penetrate the wall of the vein. In conditions of marked toxemia and collapse, particularly if associated with a weakly acting heart, the veins are collapsed and almost empty, and therefore may prove somewhat difficult to penetrate. Proximal compression and perseverance will, as a rule, readily yield successful results.

C. Difficulty in aspirating a sufficient quantity of blood. If you cannot draw blood, I find that by far the most frequent reason is because *you are not in the vein*. Therefore, try again. Another reason is that the point of the needle may have gone through the lumen and walls of the vein into the surrounding tissues, so that the lumen of the needle is no longer in the lumen of the vein. Of course, it is obvious that no blood can be aspirated under such conditions. The way to obviate this is very simple. As soon as you have penetrated the skin, produce your vacuum; and then only proceed to puncture the vein. The moment you are in the lumen, you will at once see the flow of blood and stop pushing the needle further. The syringe may be leaking, so that air instead of blood is aspirated. The leak may be at the point of attachment of the needle to the syringe. The lumen of the needle may not be patent, as the result of either rust or clotted blood. The latter instance is particularly frequent if more than one attempt is made to penetrate the vein. The remedy, of course, is to change the needle. One should always have more than one sterile needle in blood culture work. The stylet may be left in the needle. I find that, even if you are in the lumen of a vein, but if the vein is a small one, you will have difficulty in obtaining a sufficient quantity of blood. Therefore, always choose a vein of proper size. If the proximal compression is too tight, and the arteries are compressed, and therefore the *vis a tergo* is no longer operating, you may have difficulty in obtaining a sufficient quantity of blood. Therefore, remove the compression as soon as you begin to obtain blood.

2. CONTAMINATIONS.

This phase of blood cultures is exceedingly important. Of course, it is axiomatic, if we are searching for bacteria in the blood, we must not put bacteria into it from the outside, no matter from what source. This is what we mean by contaminations. The contaminating microorganism may cause confusion, not only by its mere presence, but by a process of antagonism it may kill off the microorganism that is the real etiological factor of the disease in question. Let us consider in detail the sources of contaminations and how to avoid them. It is wrong to draw conclusions from the efficacy or the failure of a vaccine prepared from the isolated microorganism and applied on the patient, as to whether or not the bacterium is the real cause of the disease. Contaminations, especially by the pyogenic cocci, such as the staphylococcus and streptococcus, may be exceedingly troublesome. When such microorganisms are isolated, and if there is the slightest doubt in one's mind as to their origin, repeat the process.

The skin. As it is well known, the skin forms a hotbed for bacteria. They are not only on the surface, but between the epithelial cells, in the mouths of the sweat and sebaceous glands, and hair folli-

cles. The microorganisms encountered are not only saprophytes, but also *Staphylococcus pyogenes aureus*, *Staphylococcus epidermidis* and *albus*, the streptococcus, and other pathogenic bacteria. I find, however, that for blood culture purposes you can disinfect the skin thoroughly, so as readily to eliminate contaminations from this source by one of the following methods:

1. *Tincture of iodine* has given me the best results, and I recommend it most heartily. The official tincture is the preparation of choice, and is very effective. You get good results by simply painting the skin over the vein with the tincture of iodine; or else you can previously apply tannin-alcohol, acetonalcohol, or plain alcohol. *A priori*, one would be led to believe that the discoloration of the skin by the iodine would be objectionable, because the blue streaks outlining the course of the veins would thus be obliterated, making the venous puncture more difficult. Practically, however, one finds that this is but seldom the case, as the course of the vein is also indicated, usually, by its superficial prominence. Previous outlining of the vein with ink, silver nitrate, etc., will obviate all such difficulties.

2. The ether alcohol and bichloride method ranks second in choice: (a) Wash part with tincture of green soap, aided by sterile soft brush and hot water; (b) wash with ether; (c) wash with alcohol, sixty per cent.; (d) apply a towel saturated with a hot solution of one to 1,000 mercury bichloride. (This heat dilates and brings the veins into prominence.)

3. Another good method is that of Landerer and Kraemer, who apply compresses of one per cent. formalin for twelve to thirty-six hours. Of course, such a method, although very efficient, is not always practical, on account of the length of time required.

Other effective methods are:

4. Repeated applications of tincture of green soap (Sikemeier).

5. The application of alcohol plus five per cent. tannin (Zabludowski).

6. Acetonalcohol (v. Herff).

7. The application of petroleum and benzin (Zatti).

I realize that there are numerous other methods of skin disinfection, but the foregoing methods I have found very effective and they will do for all practical purposes.

The difficulties encountered in destroying bacteria on the surface and in the skin vary not only with each individual case, but in different anatomical locations in the same individual. The softer the skin, and the less it is exposed and subject to dirt and filth, the more easily and more effectively is it subject to disinfection. For these reasons, choose such places as the bend of the elbow for venous puncture. For the same reasons, the skins of women and children are easily and thoroughly disinfected.

In summing up, I reiterate that the skin can be properly and thoroughly disinfected for blood culture purposes by the proper technic.

3. CONTAMINATIONS FROM APPARATUS.

Contaminations from this source are avoidable and should not occur. The hay bacillus and other saprophytes are the usual microorganisms en-

countered. Needles, syringes, and other apparatus should be of such a nature that they can be readily boiled or sterilized by dry or moist heat. By subjecting the apparatus to boiling for five minutes, or to dry heat at 160° C. for one hour, or at twenty pounds of steam pressure for fifteen minutes, it will be rendered absolutely sterile. The addition of soda to the boiling water, so as to make a one per cent. solution, will prevent the rusting of the instruments. The apparatus can be sterilized in suitable containers, such as test tubes, cases, etc., and will then be sterile and ready for use when desired. Of course, the instruments must be of such a nature as to be able to withstand these methods of sterilization. All glass or metal instruments should be preferred. Disinfection of the instruments for bacteriological purposes, by placing them in the various germicides, such as carbolic acid, bichloride of mercury, lysol, alcohol, etc., should be discouraged, as the germicide may actually destroy or inhibit the growth of the bacteria in the blood. The attempt to wash away the disinfectant by sterile water or sterile saline is no solution of the problem. We must bear in mind that sterile instruments are also subject to contaminations. In other words, we must not lay them on the table or touch with the needle unsterile objects, or otherwise bring about conditions conducive to contamination.

Glassware employed in blood culture such as test tubes, Petri dishes, and flasks, should be subjected to dry or steam sterilization. The apparatus employed must not be too hot when blood is drawn, or it will have a deleterious effect upon the bacteria. The secret of preventing contamination and at the same time greatly increasing the life of apparatus is to take good care of them, and keep them clean between uses.

CONTAMINATION FROM MEDIA AND OTHER SOLUTIONS EMPLOYED.

In my experience contamination from this source is rather rare. The ammonium oxalate, sodium citrate, bile, etc., into which the blood is placed, as well as the media employed for cultivation of the bacteria, should be sterilized by placing in the autoclave at fifteen pounds pressure for twenty minutes, or by steam heat without pressure for twenty minutes on three consecutive days, by the process known as fractional sterilization. For this purpose sterilization by boiling for five minutes is also very effective. If the precaution is taken to incubate the media and to test culturally the above named solutions, to insure their sterility before use, contamination from this source will be absolutely avoided.

CONTAMINATION FROM THE AIR.

Air contamination is a genuine source of confusion in the bacteriology of the blood. The previously mentioned sources of contamination are infrequent, form only a negligible factor, and even the beginner can entirely eradicate them with usual care, attention, and patience. The air, on the other hand, furnishes the most frequent source of contaminations and, by the old method of blood culture, this can be minimized only by experience in this line of work. By the use of the author's blood aspirating apparatus (see *Journal A. M. A.*, March 1, 1913, p. 649) this can be entirely eliminated. That the bacteria of the air form the most frequent source

of contamination is proved by the fact that the contaminating microorganism on the blood plates almost invariably form a superficial colony, composed of microorganisms usually found in the air, namely, the hay bacillus, moulds, and yeasts. Among the saprophytic organisms commonly met with are *Penicillium glaucum*, the common blue green mould, the pigment producing yeastlike organism known as "red yeast," and a number of bacteria such as several micrococcus and sarcina forms (*Sarcina lutea*, a yellow chromogen, etc.). In sick rooms and in hospitals it is important to bear in mind that pyogenic cocci have been found. The tubercle bacilli, which have also been found in the air of the same places, will never form a confusing factor in blood culture work, on account of their difficult and slow growth. The most significant factor to bear in mind is the fact that minute droplets of moisture or mucus, laden with bacteria, may be discharged into the air by coughing, sneezing, and talking, and may then float for some time in the neighborhood of the person discharging them. Therefore, avoid these habits and see to it that others in the vicinity of the field of operation do likewise.

Expose the blood as little as possible to the air at the bedside. Practise placing the blood in some neutral fluid which prevents the blood from coagulating, but is not in the slightest way bactericidal, and will even allow growth and multiplication of the bacteria. Such fluids are one per cent. sodium citrate solution in normal saline and 0.2 per cent. ammonium oxalate solution in 0.6 per cent. saline, peptone solutions, etc. This practice is a good one, and should be encouraged. The blood may be manipulated and planted on the various media later on before the laboratory flame, where conditions are entirely different from those at the bedside—not only from the standpoint of obviating contaminations, but also from the fact that it is much more convenient. Furthermore, the Bunsen flame in the laboratory is much more efficient in sterilizing the mouths of test tubes, etc., than the alcohol flame at the bedside.

Minimize currents of dust laden air by avoiding draughts. Shut doors and windows, and stop all disturbances.

Do not hold unstopped glassware, as test tubes and flasks, vertically, but rather on the bias; bacteria from the air will have less chance of falling into the mouth of the receptacle. Replace stoppers as soon as possible; the reason is obvious. The key note of avoiding air contaminations is to expose to the air blood, media, solutions, and glass ware as little as possible.

4. PLANTING THE BACTERIA OF THE BLOOD ON SUITABLE MEDIA AND ENVIRONMENT.

Not infrequently the blood is considered sterile, not because there are no bacteria present, but because they were not given an opportunity to grow, and hence were not demonstrable. The sources of error are four in number, viz., from (a) media, (b) temperature, (c) gaseous surroundings, (d) presence of bactericidal substances. Let us consider them in the order mentioned.

(a) *Media*. No medium should be employed for any bacteriological purpose until its sterility is absolutely established. This holds good particularly in

the study of the bacteriology of the blood. For, in this procedure, the medium is enriched by the addition of blood, and is then incubated under optimum conditions. Should any dormant bacteria be present in the medium, they are sure to assume activity and will thus grow and multiply and manifest themselves in the form of colonies which will vitiate the results of the blood culture. The medium before use should therefore be incubated for at least twenty-four to forty-eight hours at 37.5° C. before declaring it sterile. Media should be sterilized in the autoclave for twenty minutes at fifteen pounds pressure, or in the Arnold sterilizer by the process of intermittent sterilization, i. e., for twenty minutes on three consecutive days.

Of course, it is axiomatic that the particular microorganism in question causing the septicemia must be planted on nutriment which is suitable for its growth and multiplication before we can isolate and identify it. We know that the various bacteria require various food stuffs for growth and multiplication. For instance, to attempt to isolate the gonococcus from a patient by planting it upon a medium which does not contain serum is impossible. The gonococcus will simply not grow upon such a medium; and so on, with the remaining bacteria. They will grow better upon one nutrient medium than upon another.

It is furthermore exceedingly important to cultivate the microorganism upon optimum media and environment when attempting first to isolate it from the body. I have repeatedly noticed that microorganisms, after growing for several generations in a saprophytic environment and conditions, will thrive upon less favorable media, upon which they refused to grow at the beginning, when they were first isolated from the patient, and were therefore accustomed to only parasitic existence.

The question thus arises, How can we determine beforehand upon what media to plant the blood in a particular case, since we do not know absolutely beforehand what microorganism causes a particular infection? This may appear very difficult; but, practically, it really is not. The solution to the problem lies first in ascertaining by the clinical history the subjective and objective symptoms of the patient as to what is most probably the infecting agent. And, second, after having ascertained the facts, to plant the blood upon such a wide range of various media that for all practical purposes, no matter what microorganism is present, there will be at least one nutrient medium suitable for its growth and multiplication. That this procedure is logical, is self evident.

The media I employ for routine blood culture are the following: Two Erlenmeyer flasks, each containing 100 c. c. of plain bouillon and glucose bouillon, respectively; plates of two per cent. agar, glucose agar, and glucose serum agar; and 0.5 per cent. of plain agar, glucose agar, and glucose serum agar in tall columns in test tubes. Two c. c. of blood are placed in each of the flasks and one c. c. in each of the solid media. The amount of solid media employed is ten c. c. All media employed is nine per cent. acid, using phenolphthalein as an indicator. Thus, as a rule, ten c. c. of blood are planted. The blood is thoroughly mixed in the

flasks, by a gentle rotary movement. The agar is fluidified and then cooled down to 38° or 40° C. before the blood is added. This temperature has no deleterious effect upon the bacteria of the blood, since they are exposed but a short time. After the blood is added to the two per cent. agar tubes, mix it thoroughly by rolling test tubes between the palms of the hands, or else by pouring contents from test tube to test tube, and pour in Petri dishes. To one of these also sterile ascitic serum is added in the proportion of one part of serum to nine parts of medium. To the 0.5 per cent. agar tubes, you add one c. c. of blood by means of a pipette, starting at the bottom of the test tube and depositing the blood in a steady stream in the centre of the column of agar, by drawing the pipette through the agar from the bottom upward. This will give you an anaerobic medium at the bottom and an aerobic medium toward the top of the test tube, and a combination of both in between. It is self evident that all these manipulations are preferably done at the laboratory before a good flame, rather than at the bedside, where the blood should simply be gathered in two c. c. of two per cent. sterile sodium citrate solution in normal saline.

(b) *Temperature*.—The optimum temperature for bacteria is that of the body, viz., 37.5° C. And this is the temperature the blood cultures should be placed into as soon as possible after the blood is drawn. Most of the hardy bacteria will stand wide variations of temperatures for a considerable length of time. Examples of this class are *Staphylococcus pyogenes aureus*, the colon, typhoid, anthrax bacilli, etc. Some, like the gonococcus, meningococcus, and certain strains of streptococci are fragile and should be placed as soon as possible under optimum conditions.

Blood should not be drawn in a too hot apparatus or syringe, and when placed in molten agar the latter must be cooled to 38° or 40° C. The mouths of test tubes and flasks after flaming must be allowed to cool somewhat before pouring blood over them. This is not only to avoid killing the bacteria by excessive heat, but also to avoid cracking the glass-ware.

(c) *Proper gaseous surroundings*.—It is no longer sufficient in studying the bacteriology of the blood to plant the latter under aerobic conditions only. Anaerobic cultures should also be made. For we now know that there are in the blood certain forms of diplococci, as well as streptococci and bacilli, which will grow only under partial or complete anaerobic conditions. These microorganisms will be missed unless planted anaerobically.

The various anaerobic methods employed in the study of general bacteriology are applicable also in blood cultures. I prefer the anaerobic methods obtained by the use of Buchner's tubes, Novoy jars, and the anaerobic method described above under media.

(d) *Bactericidal substances*.—These form important factors in the success or failure of blood cultures. Substances inimical to bacteria may be introduced into the blood from the outside or they may be present within the drawn blood from the beginning.

Bactericidal substances may be introduced into

the blood when the syringes, needles, and other apparatus are sterilized by means of various germicidal chemicals instead of heat. These germicidal substances may be in sufficient concentration actually to kill the bacteria or else merely inhibit their growth; in other words, they act merely as antiseptics. In either case, the result will be the same.

The bactericidal effect of the sun's rays is quite frequently overlooked. It is a pernicious habit to allow flasks and Petri dishes containing cultured blood to stand for hours in the glaring sun. The direct rays of the sun have marked penetrating powers; and sunlight is an effective germicide. It destroys not only bacteria, but spores as well.

It is perhaps wise to emphasize here that the different rays of light have very different effects upon germ life. The only rays of light possessing germicidal power are the more refrangible chemical rays of short wave length; that is, the blue violet and ultraviolet. In this regard the red and yellow rays are practically inert. It makes no difference as to the source of light; it is more a question of intensity and nature of the rays. Diffuse light must not be overlooked, for it also retards growth and development and, if strong enough, will finally stop them. The electric rays are also somewhat bactericidal, and one should bear this in mind when working at night, not to leave cultures of plates and flasks for hours beneath an incandescent light.

As to bactericidal substances within the drawn blood itself, according to Buchner and others, the normal organism exerts its natural immunity by means of bactericidal substances within the blood. These substances Buchner termed *alexins* (from a Greek word, which means to ward off). Undoubtedly, the alexin content of the blood of an animal corresponds to the degree of immunity toward a particular infection. The serum of the white rat is very strongly germicidal for the anthrax bacillus. This animal possesses a natural resistance to anthrax. Furthermore, the germicidal power of the blood increases in an artificially and in a naturally immunized animal.

These bactericidal substances in the blood exert their deleterious influence within the body, also outside of the body. (Buchner, *Archiv. für Hygiene*, 10, p. 84, 1891). Buchner has furthermore proved that the cell free serum possesses the same power as the blood itself. The bactericidal power of the blood outside of the body is sometimes tremendous, a single drop of rabbit's blood being able to destroy 53,700 anthrax bacteria (Lubarsch, *Centralblatt für Bakteriologie*, 6, p. 481, 1889).

In a great many cases, however, there is no relation between the resistance of an animal and the bactericidal power of its serum. You can vaccinate an animal against the streptococcus and obtain a high degree of immunity toward it without the blood possessing any germicidal properties against the streptococcus.

It is important to bear in mind that normal human blood serum is powerfully bactericidal for the typhoid bacillus, although we are all susceptible to typhoid infection.

To overcome the bactericidal power of the blood serum we employ two methods, dilution and neutralization. Not more than three to five c. c. of

blood should be placed in 100 c. c. of bouillon. For solid media only one c. c. of blood should be planted on ten c. c. of media. By these methods we dilute the bactericidal substances to such a degree as to render them harmless. To neutralize the bactericidal substances we use such fluids as bile, peptone solutions, two per cent. ammonium oxalate, and one per cent. sodium citrate in saline solution for every ten c. c. of blood.

4. *Identification of the bacteria isolated.* As a rule, one has but little difficulty in identifying the usual pathogenic microorganisms found in the blood. By the study of morphology, biology, pathogenicity, and biochemistry of the isolated bacteria, according to definite principles in bacteriology, they, as a rule, lend themselves to their proper identification. Some of the diplococci, however, are exceedingly difficult to classify; sometimes even impossible. These microorganisms should not be classified as contaminations; but, if isolated repeatedly from the blood, should be termed the true etiological factors of the disease. Wherever possible, corroboration should be sought by agglutinating the isolated microorganism with the patient's blood and by the complement deviation test.

907 ST. MARK'S AVENUE, BROOKLYN.

SEX GLAND IMPLANTATION.

Some Further Experimental Observations.

BY G. FRANK LYDSTON, M. D.,
Chicago.

(Concluded from page 608.)

It was my good fortune recently to study a specimen of a testis removed very early after an implantation. Sections prepared from this specimen show some interesting features, as also does the history of the experiment, which later will be presented in detail in this paper.

Both testes were secured from a powerful and apparently healthy man twenty-three years old, a professional athlete, dead ten hours of narcotic poisoning. The cause of death is worthy of note, inasmuch as the results of the subsequent implantation of the glands conclusively proves that death from narcotic poisoning does not impair the vitality of implantation material. Obviously, this greatly enlarges the field of available material, and consequently the usefulness of sex gland implantation as a therapeutic resource. Experimentation at some future time with material from bodies dead of carbolic acid, bichloride of mercury, and illuminating gas poisoning might be interesting.

Eleven hours later, both testes were implanted on a young man of twenty-two years, suffering from dementia præcox. Nutrition of the subject was only fair. One gland, the right, was implanted in the suprapubic region, beneath the deep layer of the superficial fascia upon the linea alba. The other, and the smaller, gland, was implanted in the scrotal sac, just above the recipient's left testicle.

Healing was apparently perfect in both implantations, but on the ninth day pus appeared in the hypogastric wound, with a distinctly putrescent odor. Believing the gland to be necrotic and the

implantation consequently a failure, I removed it. To my astonishment I found the tunica of the gland adherent to the tissues of the implantation bed, and covered with numerous areas of new bloodvessels. The centre of the gland was necrosed, but a good portion of the periphery apparently still was living. The fate of the gland implanted in the scrotum will be presented later, it being sufficient at this point

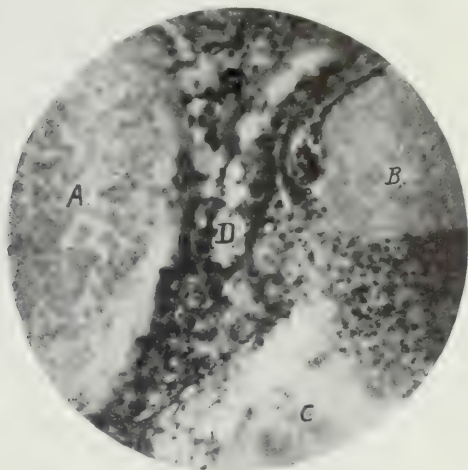


FIG. 19.—Section of implanted testis from a donor dead ten hours or narcotic poisoning removed on the ninth day. A-B-C, degenerated remains of spermatic tubuli. D, interstitial (intertubular) connective tissue cell proliferation and leucocytic infiltration. ($\times 275$.)

to present the histological features of the removed companion testis (Fig. 19).

Although not as plainly marked as in the section shown in Fig. 21, the early proliferation of the intertubular tissue seemingly is quite evident in Fig. 19. The interior of the testis being necrotic and infected, it is, of course, doubtful whether in this particular instance permanent organization of this particular area would have occurred, although I believe that quite likely it would have done so.

A most interesting feature of the various sections of the implanted testicle examined was the presence of a considerable proportion of normal blood still remaining in the old vessels, in connection with corpuscles which were undergoing dissolution. There also were many extravasations or infiltrations of normal blood in the tissues, interspersed with both new and old capillaries. This suggests that the vitality of the implanted gland is quite enduring, sufficiently so to give plenty of time for its nourishment from its new environment to begin. Reflecting on Leo Loeb's experiments in cultivating tissue cells, both *in vivo* and *in vitro*, and the endurance of life in frozen cells, it should not be surprising that a healthy, sterile gland, bathed in nourishing blood and tissue juices at the normal temperature of the body, should survive and eventually form a new vascular supply.

The somewhat extraordinary appearance of the immediately foregoing section (Fig. 21)—which strongly resembles a neoplastic growth—possibly may be explained as follows: In my technic of implantation I exsect small areas of the tunica albuginea. At the point shown in the illustration, the area of the exsection did not involve quite the entire thickness of the tunica throughout, but at one point was left an extremely small aperture through

which the rapidly proliferating interstitial cells extruded. The area may, of course, represent a severed bloodvessel, through which the cells are extruding from beneath. I have noted in other sections an invasion of the cortex by interstitial cells at points of denudation.

In presenting the various sections illustrative of the histology of implanted testes, I am not unmindful of possible sources of error, which subsequently may be corrected either by myself or other investigators. At present writing, however, the results seem to me to be conclusive. The peculiar type of connective tissue shown in the various sections must either be the interstitial cell of Leydig—or a derivative of it—or there exists in the testis a peculiar type of tissue hitherto undescribed. It is hardly possible that the tissue demonstrated herewith could have been overlooked by the many competent histologists who have studied the normal testis. Studies of implanted glands have not hitherto been made. The leucocyte theory of connective tissue generation of Cohnheim and Metchnikoff having been abandoned, the possible sources of tissue regeneration in the testis are four: 1. The true secretory epithelium; 2, the Sertoli cells; 3, the ordinary fibroconnective tissue of the gland septa and the tunica albuginea; 4, the interstitial connective tissue or "between cells" of Leydig. The epithelial cells may be ruled out, offhand. The Sertoli cells are, in my opinion, of even less importance. They lie within the tubuli and have a purely nutritive function, concerning the true secretory epithelium, and die when the latter dies. The ordinary fibroconnective tissue plays but a minor part. The

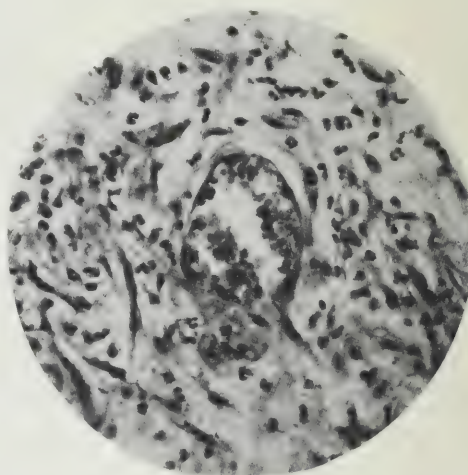


FIG. 20.—Section of tunica albuginea of implanted testis from donor dead of narcotic poisoning, removed on the ninth day after implantation. The section shown is from the inferior surface of the tunica, i. e., in the zone of contact with the tunica vasculosa. The section shows an abundance of probably regenerating—or regenerated—connective tissue cells of a peculiar type and a moderate number of leucocytes. The nuclei in the specimen seemed in some instances to indicate a regeneration of the peculiar connective tissue cells, some of which resemble the characteristic interstitial cells of the intertubular areas shown in the preceding illustrations. In the centre of the section is a bloodvessel of apparently new formation, containing normal blood. ($\times 400$.)

microscopic sections presented in this paper plainly show the strata of the histological elements and emphasize the difference in the structure of the various strata.

While the interstitial cells found in the normal ram's testicle and those shown in the section from an

implanted fowl's testis are nearly identical throughout, it is not to be expected that the cells in regenerated implanted glands always will appear the same. That sections of implanted glands or, for that matter, of normal glands, will show the "idealized" classic conformation and arrangement shown in certain works on histology also is not to be expected. The cells are thicker than normal and more or less altered in form and grouping, by contraction of the mass and resulting pressure, both by their own organization and a certain amount of ordinary fibro-connective tissue.

Like all other connective tissue, the interstitial tissue of the testis "consolidates and contracts," but it holds its own in respect of vitality, and a very small nodule of the implanted-tissue-end-result, probably contains as much, possibly more, of the Leydig cells than does the entire organ at the time of implantation. That these cells are as active, or their hormone product as abundant and physiologically as potential, as are the internal secretory cells under normal gland conditions, is open to question. Possibly the relative increase in the quantity of the highly specialized cells in the implanted gland, with a consequent relatively greater amount of hormone produced, may compensate for a difference in the quality of hormone production. That the implanted cells are effective therapeutically is no longer an open question in my mind. The chief problem now is, Will the implanted gland in elderly subjects eventually functionally succumb to the recipient's tissue influence and produce a quantity and quality of hormone normal to his or her age? Possibly, yet we have two factors to consider:

1. The rejuvenation of the entire body by the alien hormone, a rejuvenation in the benefit of which the implanted tissue itself participates.

2. Even granting that the quality and quantity of the hormone produced by the implanted tissue eventually is not comparable to that produced by a similar number of cells under normal conditions, the sum total of hormone production of the implanted tissue and the subject's own glands necessarily is greater than normal to the subject's age.

It is probable that a gland from an older donor, implanted on a young subject, may be rejuvenated by the implantation. In general, such implantations are more logical than the implantation of very mature glands upon older recipients.

In all my implantation work I have been impressed with the fact that the tunica albuginea and the gland tissues just beneath it should be the most valuable of the testicular tissues where partial implantations are done, merely because better nourished and therefore mostly likely to survive, with resulting rapid and extensive regeneration of the interstitial tissue beneath the tunica.

CASE. The case in which was implanted the testis from which the sections shown in Figs. 19, 20, and 21 were taken was as follows: Young man, aged twenty-two years, no occupation, heredity bad, paternal grandfather and one paternal aunt committed suicide. Another paternal aunt had seven children, five of whom developed dementia between the ages of sixteen and twenty years. This aunt was insane for twenty years after the birth of her last child and died insane. Patient was very bright at school. He suffered with a head injury of some kind four years ago, which his parents are inclined to believe had something to do with his condition, as their attention was first attracted to his mental state not long afterward. For some

time he complained of headache. This injury, in my opinion, bore only a coincidental relation to the mental state that subsequently developed. Taking into consideration the family history and the typical nature of the case, and the absence of history of really severe trauma and of present evidences of previous trauma, my position regarding the possible etiological relation of the head injury to the mental state would seem to be justified. About three years before I saw the case, a Neisserian infection was contracted. Recovery apparently was satisfactory. The contraction of this infection, according to his mother, "preyed upon his mind a good deal and may have had something to do with his mental condition."

Something over three years before I saw the patient, mental symptoms first were noticed. Dr. Archibald Church was consulted, September 13, 1914. His report in brief was as follows:

"The case impresses me as being the initial phase of a dementia præcox. I anticipate that he will develop a phase of activity, perhaps with a good deal of excitement and boisterous conduct, or he may become more and more stupid and catatonic. At any rate it will be some time

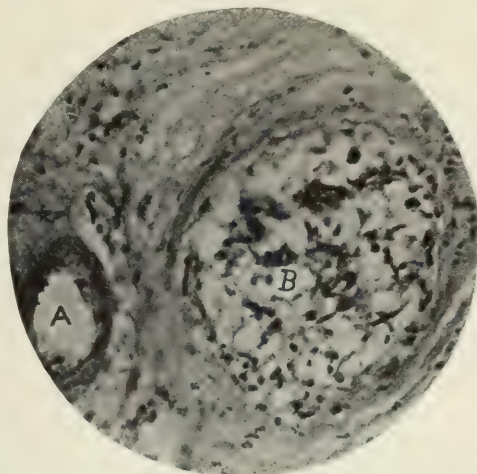


FIG. 21.—Section of inferior surface of tunica albuginea of implanted testis from donor dead of narcotic poisoning, removed on the ninth day. A, apparently new bloodvessels containing normal blood. B, area of peculiar cells, probably derived from the interstitial (intertubular) tissue. This section shows the ordinary characteristics of the connective tissue of the tunica propria of the testis, with numerous leucocytes. ($\times 325$.)

before he is better and his ultimate prospects are extremely bad."

Soon after the case was brought to my attention, I referred it to Dr. Bayard Holmes for an Abderhalden test. His report was as follows:

"The hemoglobin was eighty per cent., the whites 12,400, the reds 4,800,000, the polymorphonuclear neutrophils fifty-seven per cent., small lymphocytes thirty per cent., large lymphocytes eight per cent., transitionals one per cent., and eosinophiles four per cent. The form and character of the red corpuscles were normal and no parasites were to be observed.

The serum of this blood was centrifugated for two and a half hours and 1.5 c. c. of the serum was placed in each of six dialyzers, in which was also placed one gram of the following: Human organ albumins prepared according to the method of Abderhalden and each tested free from ninhydrin reducing elements before being used, namely against cerebral cortex, pancreas, thyroid, ovary, testicle, and one control. They were incubated in Erlenmeyer flasks each containing 20 c. c. of sterile water for a period of sixteen hours at a temperature of 90° to 100° F. At the end of that time they were each tested against the ninhydrin solution and boiled for one minute. Every tube proved negative, being perfectly clear at the end of a half hour.

The blood serum in this case does not give any of the reactions of dementia præcox. Neither does the blood picture of the microscopical examination correspond with the blood picture in cases of dementia præcox. Although I made no considerable examination, the ocular reflexes and the mental picture did not suggest to me even the

possibility of an embryonic case of that disease. I do not hesitate to state that this is not a case of dementia præcox."

Doctor Holmes's report, taken in connection with Doctor Church's diagnosis and my own, which corroborates that of Doctor Church, is worthy of serious reflection. That the subject is insane is beyond the possibility of doubt. That the case must be classed as dementia præcox is obvious. The prevailing nomenclature of psychoses is faulty, it is true, and, in the case of dementia præcox, absurd, in a way, the term having only a symptomatic-chronological basis, with no definite pathological foundation, but at present it is the best nomenclature available. It is possible that the Abderhalden test and hemological observations eventually may enable us to resolve dementia præcox into several distinct pathological types, one of which responds positively to the Abderhalden test, while the others do not. This would facilitate a more scientific nomenclature and classification. It, of course, is possible that my conclusion regarding the head injury in the case is incorrect, if so, this naturally might explain the negative Abderhalden. Even granting, however, that the head injury was an exciting, etiological factor, the same nomenclature would confront us.

The evidences of mental deterioration in the case in point are distinct, and of a character which lead me to classify the psychosis as hebephrenia of the paranoid type. Hallucinations have been a dominant feature. Voices whispering adverse comments and insults were daily complained of. Lack of energy, and the complaint that he was too weak to work, were salient points. The most prominent feature of the case was the patient's notion that he was a great architect and builder. His particular obsession was that he was in the employ of the city of Chicago, his special business being the remodeling of every large building within the loop. He spent many hours each day in writing "specifications" for such remodeling. The following are samples of his lubrications.

1. The Mallers Building was built as large in City as neither Building contribute to Herbert at all. Fine stones on Mallers Building has stones representing the ends of earth. One on each side of door as two poles or ends of earth. Have building largest in world and fine stones as Equator higher up as students dont know. Have lights showing these stones.

2. The Hub store built before Marshall Field & Company Building. Both sell men's suits. Buildings has no opposition on Account of neither seeing each other. Mostly for two hotels or Theatres. Blackstone and LaSalle Hotel, leaving both tops off both hotels and they will be eighteen or Blackstone Theatre and Majestic Theatre, Blackstone takes one off of Majestic leaving Eighteen. 4 Building and 4 stories make same as largest Printer Building. Both see Monadnock Bldg.

3. The LaSalle Hotel built after McCormick Bldg only a Hotel. Built same distance from Railroad and McCormick Bldg, and not hurting I. C. R. R. Have large smoke stack running up side of Hotel for no interruption of I. C. smoke stacks. Built also on account of Taft. Same height as McCormick. Top of Seats are higher in LaSalle Hotel on accounts of foreign countries and Washington and also Quaker City Church. People must not think they are Queen and Kings Seats here on that account. Little like Blackstone on Top of Bldg. only larger and different altogether.

4. The Franklin Bldg. is the building supposed to be finest printers building in city to honor *Benjamin Franklin* the same man discovered telephony. Same can be used as business building as close to Heisen Bldg. as Heisen Bldg. built for high telegraphy today, bringing telephony and

telegraph together on account of printing paper being very precious, and two fastest ways of protecting same. Offices to be used as same making Franklin Bldg. *Finest* in city.

October 3, 1914, by request of the patient's mother and with complete understanding on her part of the experimental nature of the procedure, I implanted two testes upon the patient, one in the suprapubic region and the other in the left side of the scrotum. Dr. French S. Cary assisted at the operation. The result of the suprapubic implantation already has been related. In passing, I would state that, in my opinion, faulty technic was responsible for the loss of this testicle. The gland was very large and firm and the implantation bed was

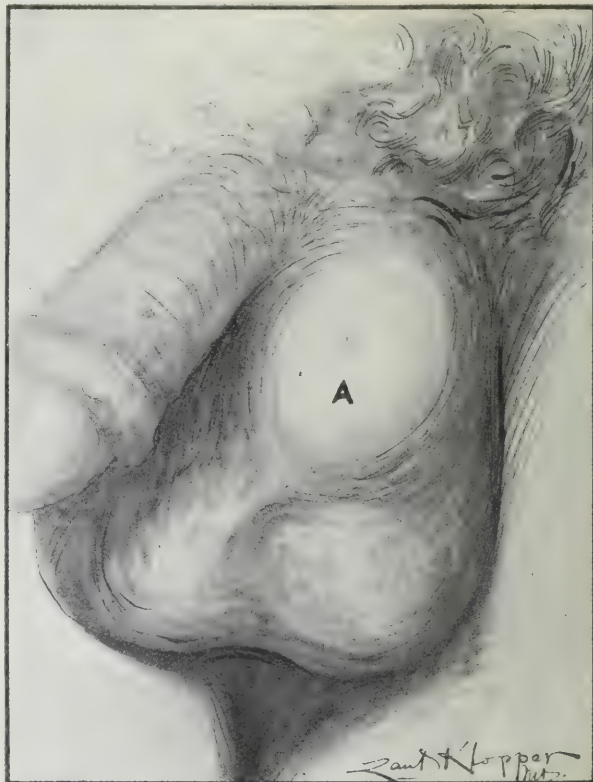


FIG. 22.—Testis from a body dead ten hours from cocaine poisoning, implanted in a case of dementia præcox. Implantation eleven hours later—twenty-one hours after death. Drawing made six weeks after the implantation. At present writing, more than four months after the implantation, the implanted testis is a firm, characteristically shaped body about two thirds of its original size.

hardly ample enough, the resulting pressure being disastrous. Even as matters were, a considerable portion of the gland was living, adherent, and, had it not been removed, possibly would have survived permanently.

The scrotal implantation was perfectly successful. Fig. 22 shows the condition at the end of the sixth week. At present writing, December 16, 1914, there has been no diminution in the size of the implantation mass, which could not be explained by resolution of the defensive exudate surrounding it.

Beginning about one week after the implantation, considerable improvement in the patient's mental condition was noticeable. His "architectural" writing became a little more coherent, and he would not write unless urged to do so. He was encouraged to correspond with his friends. Comparison of a letter written by him soon after the implanta-

tion with another written later, showed a marked improvement. This latter missive is herewith submitted.

Miss.....,
G..... Bldg.,
Dear Miss,

I received your flowers and was glad to know some kind friend remembered me. The flowers were beautiful and my mother was down to see you as she said. Now you know I am here. Will want to see you next time I get a chance myself.

Your friend,
.....

Obviously, the improvement may have been of no special significance, although it was sufficient to arouse great enthusiasm on the part of his relatives and friends.

The improvement continued for several weeks, during which time the patient did not do any writing. He began reading assiduously, expressed a desire to "go to work," and showed interest in many matters to which he hitherto was indifferent. This state of affairs lasted for several weeks, during which time his response to various tests showed a marked change for the better. The aspect of the case now again changed and the mental condition was as bad as ever. He now showed some irascibility and resumed his writing. Several weeks later, he again improved and at present writing is manifestly better. He has ceased writing, seldom hears voices, and is working in a drug store for a portion of the day. On questioning he admits the "foolishness" of his literary effusions and hallucinations, but if these matters are discussed at length his expressions are still unsound, although not so markedly as formerly. There is a change in the aspect of the case in that there now is a tendency to melancholy and, as a special source of worry, an imaginary defect of eyesight, which has been carefully tested and pronounced normal by Dr. Harry Gradle. There also is a new delusion. He attributes the "lump" in his scrotum to a large marble which he swallowed when a boy.

November 3, 1914, Dr. Ralph Webster reported a blood examination as follows:

Red cells	5,050,000 per c. mm.
White cells	16,400 per c. mm.
Polymorphonuclear neutrophiles	85%
Polymorphonuclear eosinophiles	2%
Polymorphonuclear basophiles	1%
Large mononuclears	1%
Small mononuclears	11%
Myelocytes	0%
Transitional	0%
Hemoglobin	88%
Color index .....	.8
Coagulation time	
Nucleated red cells	negative
Polychromatophilia	Negative
Degenerations	Negative
Blood pressure	120 mm.

Comparison of Doctor Webster's reports with that of Doctor Holmes is suggestive, although by no means conclusive. The improvement in hemoglobin and the number of reds is, however, consistent with what I have observed in previous implantation experiments.

At present writing, February 8, 1915, the patient is surprisingly improved both as to mentality and general condition. The "melancholy" has disappeared and his mother reports that he is quite industrious and ambitious.

It will be evident from my account of this case that I am by no means claiming exclusive therapeutic results from the implantation. There nevertheless is abundant encouragement for further experimental work in dementia præcox. The case may still further improve, and in any event it may later be shown that there is a form of dementia præcox which, if taken early, is susceptible of improvement, or possibly even cure, by implantation. If there is such a form, it probably will be found to be that which shows a positive Abderhalden reaction.

It has been my aim to present the results of my experiments as fully and impartially as possible. That the results of the implantation *per se* are remarkable, will, I think, be admitted. The patient indubitably has a third testicle, which of necessity is living, and, inferentially at least, producing hormone. From my studies in implantation I have no doubt whatever that hormone production is going on. The quantity of gland tissue still present and the length of time since the implantation, warrant the assumption that such an implantation is certain to secure the physiological and therapeutic effects of the sex hormone. Whether or not these effects are what we desire in a given case depends upon its character. The same may be said of the permanency of the result. I wish to state, in conclusion, that, although it may be proved that glands from unrelated subjects do not show such results as seen in Experiment IX of this series, we still may obtain from unrelated glands results which will prove of immense value. The present paper and my previous contributions apparently prove this point. Then, too, even though the physiological results obtained in fowls had been very discouraging—which they are not—such results by no means would settle the various questions involved in human implantations. While admitting possible sources of error, the anatomical and histological results of my experiments in fowls and human beings appear to be quite conclusive. The letters of the experimental alphabet seem to be fairly complete.¹⁰

32 NORTH STATE STREET.

THE ACTION OF SPARTEINE.*

A Review of an Article by Dr. Leslie Byron Wiggs.

BY GEORGE E. PETTEY, M. D.,

Memphis, Tenn.,

Medical Director, Pettey and Wallace Sanitarium.

When there is difference of opinion between authors and clinical observers as to the physiological effects of any remedy, it is not always easy to determine which opinion is the correct one—because the human system is a very complex organism, and while a remedy may be known to make a certain therapeutic impression, still its effect may not be such on any vital organ as to make it easy or even possible instrumentally to measure and verify that effect. That is not true, however, of all of our

¹⁰The author desires to express his thanks to Dr. C. E. M. Fisher, Dr. Thomas L. Dagg, Miss Agnes Howard, and Dr. Mabel M. Mathies for their intelligent cooperation in preparing his microscopic sections, and to Mr. F. T. Harmon for his splendid work in reproducing them by photomicrography. Magnifications from 40 to 60 Winkle 40 m.m. objective with No. 4 or No. 6 eye piece. From 60 to 90 Winkle 25 m.m. objective with No. 4 or No. 6 eye piece. 325 to 400 Zeiss 8 m.m. with No. 6 eye piece.

*Read before the Tri-State Medical Society of Mississippi, Arkansas, and Tennessee, at Memphis, November, 1914.

therapeutic agents. Concerning sparteine, no difference of opinion should exist, yet in the works on therapeutics, the widest difference of opinion is expressed as to both its action and efficacy.

In making a study of the subject some years ago, the writer came to the conclusion that these differences of opinion arose mainly from a misunderstanding of the size of the dose. The adult dose

the selection of sparteine as the remedy which met the requirements most fully and which was most free from untoward or objectionable effects.

Some writers class sparteine with digitalis and attribute to it similar effects on the circulatory system, but this is an error; while sparteine exerts as much tonic effect on the heart muscle as digitalis, its effect on the arterial system, especially on the arterial capillaries, is directly the reverse—digitalis being a vasoconstrictor and sparteine a vasodilator.

About eight years ago the writer published the

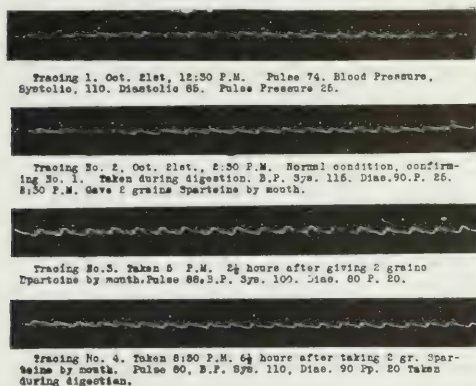


FIG. 1.—Case I, Miss Eber McC., aged eighteen years, normal condition.

was stated by different authors at from one tenth of a grain to two grains, but a majority of the writers placed the dose at one fifth of a grain or less. It was found that practically all of those who held to the fractional grain doses expressed little confidence in the remedy; in fact, most of them held it to be of questionable value, if not inert. On the other hand, those who placed the dose at from one to two grains expressed great confidence in its efficiency, both as a heart tonic and diuretic. Among those holding the latter opinion was Bartholow, who said that "above all other remedies, it deserved to be classed as a heart tonic." About twenty years ago, this statement of Bartholow's attracted the

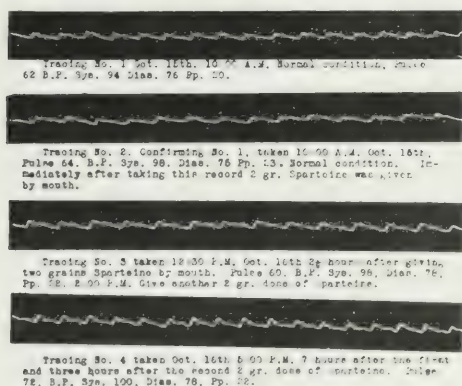


FIG. 2.—Case II, Miss P. B., aged twenty-five years.

writer's attention and the use of sparteine in two grain doses was begun.

For a few years the remedy was used empirically with more or less indefinitely deferred purpose, but the author's work becoming such as to demand frequent use of the most dependable heart tonic available, an independent study of remedies reputed to be cardiac tonics was undertaken. This resulted in

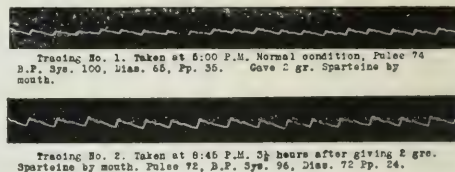


FIG. 3.—Case III, Miss O. S., aged eighteen years.

conclusions reached by him in his study of sparteine, which were as follows: 1. Sparteine, in medicinal doses, is practically a nontoxic drug. The effective therapeutic dose is two grains, and that quantity is required at intervals of four to six hours to establish and maintain the full physiological effects of the remedy. 2. It is a reliable nonirritating diuretic, suitable for hypodermic use. 3. It is our most prompt and most dependable cardiac tonic, and one which is free from objectionable by-effects. It adds tone to the heart muscle and increases the force of its action, while, at the same time, by dilating the arterial capillaries, it reduces the resistance against which the heart is called upon to propel the blood. It is a true heart tonic.

Recently, Dr. Leslie Byron Wiggs,¹ as a result of the laboratory study of the action of sparteine on the hearts of frogs and dogs, has announced conclusions differing radically from the foregoing as well as from the views held by a large number of competent clinicians who have made extensive use

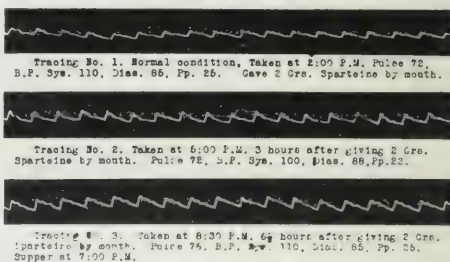


FIG. 4.—Case IV, Miss S. B., aged eighteen years.

of sparteine. Doctor Wiggs says, "to answer the assertion of various authors who state 'that they have proved to their satisfaction the value of sparteine in clinical practice,' it was determined to see how far this could be proved in the laboratory." As the result of these experiments, he reached the conclusion that sparteine "depresses the cardiac action," that it "markedly diminishes the heart tone," and that it has "no diuretic action."

As these conclusions were reached by laboratory

¹The Old Dominion Journal of Medicine and Surgery, May, 1914.

experiments on frogs and dogs, it seems to the writer that, in justice to himself as well as to those who might be influenced by his conclusions, Doctor Wiggs should have said that "sparteine has no diuretic action" on dogs. Had he stated his conclusions as to the diuretic action of sparteine thus accurately, his finding would doubtless have been accepted as final, but when he makes the broad and

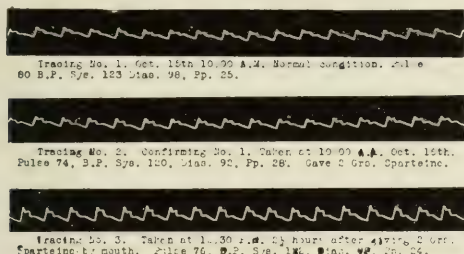


FIG. 5.—Case V, Mrs. C. A. W., aged forty years.

unqualified assertion as applying to human beings, we cannot allow the statement to pass unchallenged. Too many careful and competent clinicians have observed the diuretic action of sparteine to allow a few laboratory experiments on the lower animals to shake their confidence in facts to which their own senses bear witness.

Notwithstanding Doctor Wiggs's conclusions, the writer, from abundant clinical experience, still insists that sparteine, when administered to a human being, acts as a diuretic. Whether it has or has not diuretic action on dogs, he does not pretend to say, but it is not with this part of Doctor Wiggs's article that this paper is intended to deal, but rather with that part relating to the effect of sparteine on the cardiac function.

Doctor Wiggs says that "sparteine depresses the cardiac function, causing a diminution in the tone," and that "it therefore seems that the proper classification of sparteine is along with gelseminine and coniine, and that in conditions of failing heart power the administration of sparteine is contra-indicated. If recovery takes place in these condi-

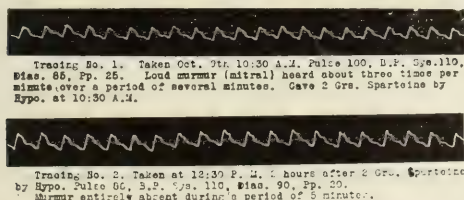


FIG. 6.—Case VI, Mrs. L. V., aged thirty years.

tions after the administration of sparteine, it is probable that the good result came, not through beneficial influence of the drug, but rather in spite of its harmful action."

We do not wish to be understood as denying the value of experiments on the lower animals in studying the action of drugs, for in many instances such experiments have furnished a reliable index to their action on man, but there are too many exceptions to this general rule for us to accept the result of such experiments as final. The crucial test, after all, is the administration of the remedy to man.

In studying a remedy such as the one in question, there seems to be no good reason for introducing an element of uncertainty into the equation by using lower animals instead of human subjects for clinical study, since the latter can be had in abundance. In this study the human instead of the animal subject has been used.

While the writer has had abundant experience in the use of sparteine in the treatment of disease, and does not feel that he could now be mistaken as to its effects when administered to persons in a pathological condition, he has not had occasion to study its action on normal individuals, but since Doctor Wiggs calls in question the generally accepted teaching with reference to its action, the writer has made a study of the action of the remedy on the cardiac function of normal individuals and presents herewith the record.

The record, which can be readily verified by any competent observer who will take the trouble, makes it clear that sparteine *not only does not depress the cardiac muscle of a human being, but on the contrary it acts as a positive and powerful tonic.*

Taking the findings of Doctor Wiggs as to the effect of sparteine on the cardiac function of frogs and dogs as a criterion, it is evident that the effect of this drug on man and animals is not the same; in fact, that the one is directly the opposite of the other. This seems to call for greater caution on the part of laboratory workers in announcing conclusions based upon animal experimentation alone. Such conclusions should not be announced as ultimate until they have been verified by tests on man.

958 SOUTH FIFTH STREET.

MULTIPLE FIBROIDS OF THE UTERUS COMPLICATED BY PREGNANCY.*

BY HERMANN GRAD, M. D., F. A. C. S.,
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My readers' attention is invited to one of the phases of the clinical history of fibroids of the uterus. This phase comes about when the uterus harboring these neoplasms, becomes gravid. At different times, the clinical observation of these cases has forced itself on me for several years and I feel convinced that the practice in vogue and the teaching of how to handle these cases are not all that could be desired.

Fibroid tumors of the uterus may lie dormant in the walls of the organ for many years, giving rise to no symptoms objective or subjective. The health of the patient suffers in no way whatsoever. The menstrual function may be normal in every way, and there may be no local symptoms such as tenderness to touch or even vague discomfort. When pregnancy occurs with a uterus which has harbored these benign, dormant, symptomless neoplasms for a long time, a factor is introduced which may turn an absolutely benign pathological process into a malignant entity.

In a recent study of Scipiadès (1) on myoma and

*Read before the Woman's Hospital Alumni Society, January, 1915.

pregnancy, the author comes to the conclusion that only a small percentage of the patients remain free of all symptoms. Thirty-five per cent. complain of pain and thirty per cent. of symptoms due to pressure, such as difficulty in urination and defecation and dyspnea. He says that softening and enlargement of the tumors is not the rule in pregnancy, and yet the same author holds that pathological changes in the tumors are quite frequent during pregnancy. Torsion of the pedunculated tumors and incarceration into the pelvis occur frequently.

Clinically, the cases of pregnancies and fibroids divide themselves into two main groups: 1. Cases of pregnancy with a uterus with multiple fibroids, and, 2, cases with a uterus with neoplasms few in number, the tumors being mostly subserous or pedunculated. The first group comprise by far the more serious class.

For purposes of clinical observation, I would designate the first group under the following title: Multiple fibroids of the uterus complicated by pregnancy, in contrast to the second group, which I would designate pregnancy complicated by fibroids. In the first group, the neoplasm is clinically of greater importance, while in the second the pregnancy is of greater clinical consideration. This latter group does not have the seriousness of the former as far as the health and life of the patient is concerned, and hence my naming these conditions differently.

A uterus which has been the seat of neoplasms for a long time has, as it were, accommodated itself to the benign growths; its function as an organ of reproduction, however, seems to have been lost. Pregnancy with an organ greatly damaged by fibroids never goes on to full term. The patient's health is undermined early in pregnancy, and in many cases life is jeopardized by the gestation. My experience with these cases bears out fully these statements, and the carefully studied cases force the conviction that fibroid tumors of the uterus, complicated by pregnancy, is a very serious state of affairs. Susserot (2) shows a mortality of fifty-five per cent. in 147 cases in this class of patients, and Pozzi shows as high a mortality as fifty-three per cent. Not every case of pregnancy where fibroids are palpable comes under this class, and I wish to make myself perfectly clear on this point. The group of cases I designate as pregnancy complicated by fibroids, is a trivial matter compared with cases I designate as fibroids complicated by pregnancy. In the former, we have a normal pregnancy with an organ which is the seat of one or two fibroids usually subserous, but may be mural, or even submucous. In the other class of cases that I designate as fibroids complicated by pregnancy, we have an organ more or less destroyed by fibroids, and here the superimposed pregnancy is a serious complication. The uterus becomes more or less distorted by the neoplasms, which may be small or large, situated anywhere in the uterine wall. The tumors may bulge into the pelvis, completely filling it, or may project above the line of the true pelvis, and by their very size cause obstruction in the birth canal. The function of the organ is seriously interfered with by the growth. The physiological processes

incident to gestation are hampered, and the gestation terminates early. The seriousness of these cases does not arise from the fact that the pregnancy is terminated early, but because it brings about pathological changes in the neoplasms. These pathological changes in the growths are mostly of the nature of gangrene. The tissue changes are not only microscopic but macroscopic, and the gangrenous process may not be confined to the neoplasms themselves, but involve also the endometrium. It is not unusual for the gross specimen to show large tracts of necrosis in the endometrium, as well as serious circulatory changes in the neoplasms themselves.

The necrosis in the endometrium is not difficult to explain when we consider the blood supply of the endometrium as given to us by Sampson (3). He says, "from each uterine artery branches arise at intervals, which penetrate the uterus. These branches, which I have called arcuate arteries, pass between the outer and middle third of the anterior and posterior uterine wall, and each one supplies a quadrant segment of the uterus corresponding to a segment of either the anterior or posterior half of the Müllerian duct of that side. They terminate in median (peripheral) and radial (centripetal) branches. The peripheral branches nourish the peripheral portion of the myometrium and the radial branches the remainder of the myometrium and endometrium. There are free anastomoses between some of the branches of the peripheral arteries. On the other hand, the terminal branches of the radial arteries appear to be end arteries." It is not impossible for a neoplasm to be so situated as to interfere with the circulation in these fine end arteries. On the other hand, the tissue destruction in the endometrium may be the result of a pressure necrosis, the pressure occurring between the growing ovum and comparatively unyielding fibroid.

Reviewing these cases entirely from a clinical viewpoint, it is of little consequence how and when the necrosis or tissue destruction of endometrium or tumor occurs; the clinician is necessarily more interested in the clinical history of these cases, as by proper interpretation, he is able to decide on the safe and judicious management of the case. The clinical history of these cases of fibroid tumors complicated by pregnancy is somewhat as follows:

A woman in the childbearing period, sterile for many years, finds herself missing one or two menstrual periods. Not having borne children for many years, she considers her amenorrhea in a strange light. A bimanual examination discloses an enlarged uterus and multiple fibroids. The question arises now, whether the case is one of fibroids with pregnancy or pregnancy with fibroids. The diagnosis of pregnancy and fibroids is as a rule not easy and the difficulties of diagnosis will be greatly increased when we attempt to differentiate these cases and class them either as pregnancy complicated by fibroids or fibroids complicated by pregnancy. The former condition may be benign, while the later state brings with it great dangers calling for prompt surgical interference. A uterus with multiple fibroids complicated by pregnancy may be looked upon in as serious a light as a malign-

nant tumor and should be surgically extirpated. A gravid uterus complicated by fibroids, allows a wider latitude of management. The treatment may be either nonsurgical, or a myomectomy may be successfully performed, with very bright prospects for a full term delivery. A successful case of this kind I reported several years ago (4). If we can positively determine that we are dealing with a case of multiple fibroids of the uterus and pregnancy in a woman not young, sterile for many years, or if the tumor is so located as positively to cause obstruction, then the coast for action for the surgeon is clear. A case of this type calls for a clean surgical extirpation of the uterus and the product of conception. It is the safest therapeutic procedure for that patient, safer than procrastination or palliative measures, safer than the induction of abortion or waiting for a spontaneous miscarriage; it is as safe a surgical procedure in this case as any case of hysterectomy for fibroids of the uterus.

I am not unmindful of the excellent teachings of this subject matter and I take pleasure in quoting an authoritative statement. Kelly (5) says: "1. Always remember that two lives are involved, and if possible save both, rejecting all radical measures unless the symptoms are urgent. Mere prophylaxis, that is to say operating when there are no urgent symptoms on account of danger which may arise, has no field here. 2. Small and median sized fundal fibroids do not demand operation. 3. Intraligmentary and subperitoneal fibroids do not demand operation unless of such a size and so located as to encroach upon the pelvic room or the superior strait, in such a way as to prevent labor. Pedunculated fibroid tumors which can be pushed up into the abdomen, do not justify interference during pregnancy. 4. Interstitial tumors should not be touched if the operation can possibly be avoided, for they require so much handling and suturing of the uterus, that abortion almost necessarily follows their removal. 5. Operation may be demanded on account of extreme pain caused by a fibroid tumor. 6. Operation may be demanded on account of rapid growth of the tumor."

With these views I fully concur, but taking all these matters into consideration, there remain many cases of fibroids of the uterus where the diagnosis can be fully established, that the uterus is so distorted by the neoplasms as to become a functionless organ for reproduction. An organ of that kind is a menace to the patient and should be extirpated together with the contents.

In advocating hysterectomy in these cases as a therapeutic measure, I feel that it is absolutely safe teaching. It is safe for the patient, proved so by experience. Were such teaching recognized and universally known by practitioners of medicine, many lives of patients so affected could be saved from the ravages of sepsis. I beg leave to cite an interesting case, illustrating the point I wish to make. The life of the patient could have been saved had the seriousness of the case been recognized and a hysterectomy been performed before the miscarriage occurred.

CASE I. Mrs. K., aged forty-two years, married nine years, was first seen in May, 1913. The history given by the attending physician was, that the patient had a miscar-

riage three days before, having been pregnant three months. For weeks before the abortion, she had been suffering with abdominal pains, at times very severe. The pains were supposed to have been due to the pregnancy, and although it had terminated and the uterus been curetted to make sure it was empty, the pains continued and were very severe. Such was briefly the history of the case. The patient looked pale, had a sensitive abdomen, and a temperature of 103° F., pulse 110. The diagnosis of sepsis following abortion seemed quite clear, but a pelvic examination showed that the case was not a simple case of sepsis, but one of multiple fibroids of the uterus, with possible gangrene of the neoplasms. The blood examination showed 3,500,000 red cells, 11,000 whites, and seventy-eight per cent. polynuclears. Urine showed a trace of albumin. Blood culture negative. A hysterectomy was decided on and the patient was laparotomized the following day. The operation was not marked by any special incident; the uterus and annexa were removed by the usual technic.

The following is the pathological report on the specimen: Macroscopic: Uterus enlarged, measuring about 12 cm. in diameter, owing to a fibroid, intermural myoma situated in the fundus, measuring 0.75 cm. in diameter. The fundal mucosa covering the myometrium, which again surrounds the myoma, shows a diphtheritic coating which is greatly hypertrophied. Several small diphtheritic spots in the lower part of the cervical canal.

Diagnosis. Endometritis phlegmonosa post gravitatem; myoma uteri. Tube was straight and thin ovary of normal size with corpus luteum. Two small subserous myomata in the posterior wall of the uterus. Microscopic: Uterine mucosa presents very thickened layers in which are a few necrotic villi and some syncytial cells. Large portions of the mucosa are also infiltrated with pus. Glands are of the pregnant type. The sinuses at the base of the mucosa are much enlarged. Dense myoma appears beneath the mucosa, with capsule of myometrium between, and this shows considerable hyaline metaplasia.

The operation was well borne by the patient, and after forty-eight hours she expressed herself as feeling much better and free of pain. The temperature rise and pulse rate was no greater than usual in a postoperative case. The patient's condition seemed very satisfactory at the end of the fourth day after operation. However, although both the abdominal and vaginal wounds were healing by primary union, the temperature was fluctuating between 102° and 99° F. This latter symptom pointed to trouble ahead and to continuation of the sepsis, although the focus of infection was removed. From now on the case was handled as one of blood infection. Diphtheria antitoxin was tried, antistreptococcal serum was then given. Salvarsan, vaccines, collargol, magnesium sulphate, were all tried in vain. On the thirteenth day after abortion, she had a chill, and on the fifteenth day the blood showed a pure culture of streptococci. Pyemia developed and the patient died six weeks after operation.

This is the class of cases that I am taking into consideration. In this case there was clinical evidence to make a positive diagnosis of multiple fibroids complicated by pregnancy. Here was a woman advanced in age, sterile for many years, a uterus with multiple fibroids and gravid. She suffers pain during the early month of pregnancy, with possibly a mild rise of temperature. The diagnosis was clear and the therapeutic measures should have been equally clear. The patient should have been hysterectomized before the spontaneous abortion occurred, and under no consideration should she have been subjected to a curettage. The case called for a clean surgical procedure, no delay, no waiting for an abortion, but prompt surgical operation. There are many of these cases and they come frequently under clinical observation. These are the class of cases I have in mind when I speak of multiple fibroids complicated by pregnancy. Here the gestation is a serious complication and should be met with prompt surgical action. This class of

cases can be saved from much suffering and frequently from death by sepsis.

In contrast to this case, I shall report briefly on a recent experience with a case of multiple fibroids complicated by pregnancy.

CASE II. Mrs. S., aged forty-two years, married twenty-three years, came under observation in January, on account of an amenorrhea of four months' duration. She had abdominal pain one month after the cessation of her menses. Last period, September 24, 1913. Menses began at the age of thirteen years, were always regular of thirty day type, moderate in amount, no pain. She had had three children, the last one seventeen years ago. No pregnancies in seventeen years. This was a significant symptom to which attention should be called. She was twenty-five years old when her last pregnancy occurred; between twenty-five and forty-two years no gestation took place. It was also of interest to observe that six months previous to her last period, which was on September 24th, she had an amenorrhea for two months. From her history it was impossible to judge whether she had an early abortion at that time or not. The menstrual period following the amenorrhea was not different in character from at other times. She had no metrorrhagia nor any other sign of miscarriage.

For two months she had been having abdominal pains and for two weeks the pain had been constant. There was a moderate rise in temperature. A bimanual examination revealed a large myomatous uterus. Several nodules were palpable. They were painful to touch. The cervix felt soft, was bluish in appearance. The breasts were tender and there was moisture on nipples. The diagnosis of pregnancy was quite clear, and she was advised to submit to a hysterectomy, to which she consented, and a supravaginal hysterodouble salpingo-oophorotomy was performed, by the usual technic. An uneventful recovery followed the operation.

Pathologist's report: Cervix amputated measures 14 cm. in diameter, globular in outline. From the cervical opening protrudes chorionic membrane. Cervical wall is reduced to a few lines in thickness. On opening the uterine wall, a hemorrhagic and apparently partly necrotic myoma, 5 cm. in diameter, appears at the fundus submucous. Numerous small intramural myomata are present. Microscopical: Uterine mucosa shows both typical decidua compacta and spongiosa. Uterine sinuses large. Myoma stains poorly from necrosis, and the tumor is rather edematous.

It would have been unwise to have allowed this case to go on without interference. The pregnancy would have terminated and the patient would have run the risk of a hemorrhage and sepsis. As it was, a clean surgical operation brought the matter to a successful termination.

If at the first examination of the patient no positive diagnosis of multiple fibroids of the uterus complicated by pregnancy can be made, it is necessary to resort to a watchful waiting. The case should be kept under strict observation. Time will tell and point the finger of caution in the direction of a safe, sane, and judicious procedure with a case. If the uterus is tolerant to its product of conception; if the birth canal is free of obstruction or can be made so, then the case can be left to a natural course of events, with a fair degree of safety, but even here not with absolute safety to the patient.

The clinical history of these cases clearly shows this. If we watch pregnant women who have fibroids, we shall find that the neoplasms will behave in one of two ways. Either the tumors give no inkling of their presence in the uterus except that they are palpable, or else they give symptoms of more or less intensity. In a large number of cases the symptoms are mild, the discomfort to the patient is negligible, while in other cases the symp-

toms are more severe and in a small proportion of cases they may be alarming. The chief symptoms are localized pain, hemorrhage, and some rise of temperature. In the more serious cases the pain is very severe, out of all proportion to the degree of local involvement. These symptoms may arise at any time during gestation. If the symptoms become aggravated and insistent, they aid in establishing a diagnosis and the symptoms should be heeded. If the symptoms have become so urgent as to call for active measures, the abdomen should be opened and the neoplasm inspected. If the neoplasms causing the symptoms are few in number and so situated that they can be removed without undue handling of the gravid organ, then a myomectomy is the best procedure. If the offending neoplasm is so situated as to be difficult of approach, or if there are a large number of tumors present, then a total extirpation of the uterus is the safest operation.

If the fibroids in the uterus have remained quiescent during gestation and have produced no symptoms, they may still become factors of disturbance during the puerperium. The symptoms during the puerperium may be ushered in quite suddenly. The patient will complain of pain in the abdomen, with chill and rise of temperature. The symptoms may be very acute, and the condition be mistaken for puerperal sepsis. The symptoms may simulate puerperal sepsis so closely that in the beginning differentiation is impossible. In a few days, however, after the acute onset has subsided, one will readily make the differentiation. The pain in fibroids is more acute and persistent than in sepsis, in fact, the pain in these cases is at times out of all proportion to the local manifestation. Peritoneal irritation is not so marked in fibroids as in sepsis, and the presence of a tender tumor clears up the diagnosis. An instructive case of this type of fibroid came recently under observation.

CASE III. The patient, E. K., aged twenty-five years, married four weeks, presented herself with a history of "spotting" for six weeks. She had then not missed any periods. Vaginal examination disclosed a cervical polyp which was clearly the cause of the spotting. There was also a fibroid of the uterus. She was advised to have the polyp removed, but she did not appear again for five weeks. She had missed then one menstrual period, and examination disclosed an enlarged uterus with a clearly palpable fibroid. The cervical polyp had been the cause of some vaginal bleeding, which forced the patient to seek relief. The patient being very nervous and apprehensive, it was deemed best to remove the polypi under general narcosis. The cervical polyp was removed with as little disturbance and handling of the cervix as possible. The patient was then kept under observation during the entire period of pregnancy. As the gestation advanced and the uterus enlarged, two more fibroid tumors became palpable, but their presence gave rise to no symptoms whatsoever. One tumor at the fundus of the uterus bulged forward, raising the abdominal wall to such a degree that it could be seen and palpated with the greatest ease. One tumor on the right side, situated somewhat posteriorly, was sensitive to the touch. The period of pregnancy passed by without incident, and labor set in on time. After being in labor for two hours, the woman was examined vaginally under the strictest possible aseptic precautions, using sterile rubber gloves. It was my endeavor to subject this patient to as few examinations as possible, and deliver her under the most favorable aseptic technic. This examination revealed the head of the child fully in the pelvis, cervix dilated to the extent of three fingers, with a good bag of unruptured

membranes. From the external examination, I was fairly certain that the presentation was L. O. A. No further vaginal examinations were made and within six hours the head appeared at the vulva, the patient delivering herself spontaneously. There was only a slight tear in the perineum requiring three chromic sutures. The placenta was expelled spontaneously, and no further handling of the parturient canal was indulged in. As the uterus became empty, the tumors became very easily palpable. There was no undue post partum bleeding, and no ergot was used. The patient began to complain of pain about four hours after delivery, and within twenty-four hours it grew so severe that she had to be kept under the influence of morphine constantly. Finally one fourth grain of morphine failed to give relief, and three eighths of a grain had to be administered to keep the patient comfortable. The temperature rose to 104° F. and remained above 102° for four days. The pulse never rose over 110. There was very little peritoneal irritation. The uterus and the neoplasms could be palpated and were found to be very sensitive to the touch. The high temperature and acuteness of the pain finally subsided, but the patient was left in a weakened condition. For the next ten days, every little while an acute onset of pain would occur, requiring the administration of morphine. The breast function was good and she was able to nurse her infant. After three weeks, she was allowed to leave the hospital. The uterus had undergone involution fairly well, the neoplasms were palpable, but not so plainly as before. At one time in the course of the puerperal period it looked as though surgical interference was to be unavoidable. The pain was very acute, and if it were not for the fact that the temperature remained low, an operation would have been performed.

This case shows clearly that, although fibroids of the uterus may give no symptoms during gestation and labor, the same neoplasms may be a factor in very serious disturbance during the puerperium.

Every case of fibroid of the uterus with pregnancy calls for careful clinical observation, and when symptoms arise during the period of gestation which are caused by the neoplasm in the organ, it behooves the clinician to exercise the utmost care and watchfulness. The symptoms vary; they may be mild and transient, but when severe, one should be cautious in order to avoid mistakes. Mistakes occur in considering the case a surgical one, when the fetus might yet be saved, or in the reverse direction of denying surgical aid in cases where it is called for, in order to avoid morbidity and mortality. Multiple fibroid tumors of the uterus, where the organ becomes distorted by the neoplasms and the walls of the organ are more or less destroyed when complicated by pregnancy, is a very serious matter for the patient, and this seriousness should be appreciated by the clinician. If the diagnosis can be clearly established, the case calls for surgical operation for the removal of the neoplasm and the offending product of gestation. If the case will not admit of a clear diagnosis, then we must place the patient under vigilant observation, note the progress of the pregnancy, and treat the complications as they arise. If the case has passed through pregnancy without disturbance, we must still consider the dangers of the period of the oncoming puerperium. During the puerperium the neoplasm may cause grave and alarming symptoms, and surgical measures may still have to be taken for their relief.

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159 WEST 120TH STREET.

THE NAILS.

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Since prehistoric days, when savage man contended with his quadruped relations for the sustenance procured by climbing trees, tearing up the earth, and rending hostile animals, his nails have lost their pristine purpose, and have shrunk to the triviality of residual appendages to sometimes tapering fingers and usually distorted toes. In China they are cultivated to an extraordinary length, as a matter of personal vanity and class distinction. In other eastern lands the same result is reached by staining them black. In parts of Europe, we are credibly informed, the ultrafashionable members of the *demi monde* emulate their Oriental sisters by tinting them in various shades of red.

No indispensable function is performed by the finger nail today. It may be handy (I crave indulgence for the unintentional joke) in opening a pen-knife, in pinching out comedones, in driving a needle for an amateur tailor, or in the temporary alleviation of a teasing pruritus. It is true that sometimes our infuriated sisters, in the stress of personal conflict, revert to the primeval office of these retrograde appurtenances, but this is unusual, and the trivial character of the injuries inflicted emphasizes the deterioration of the instruments. The disappearance of the nails from the human extremities would interfere in no way with the usefulness of these members, as man would quickly accommodate himself to the change. There may be exceptions to that statement. There may be occupations where a finger nail is a necessity, but in a broad general sense the proposition holds. On the other hand there are many ways in which the nails are a nuisance and a menace. The unguis furrow is a veritable trap for septic and luetic infection. The forcible ablation of the nails in accidents is a cause of frightful suffering. On the feet the perverse tendency of the nails to grow into the adjoining tissues produces disabling pyodermic reactions. The fleshy borders of all the nails are prone to a low grade persistent and disfiguring inflammation called paronychia. The blade and bed are liable to be infected with ringworm, which will try the patience of the victim and his physician to the breaking point.

All rudimentary organs are characterized by this vicious susceptibility to damage without any counterbalancing advantage. Take the pinna of the ear for example. In animals it directs sound into the meatus. In man it has lost that function, with its retraction in size. It provides a particular tidbit, however, for frostbite and an additional area for the spread of eczema and lupus erythematosus. In some eccentric individuals, it also furnishes a support for the hat. But that is hardly a serious consideration. Mark also the appendix vermiformis. If it is one particle of good to any one but the busy surgeon, there is no evidence to that effect. Yet see how many lives it destroyed in the older days of "peritonitis," "intestinal obstruction," "acute indigestion," "inflammation of the bowels," and other

luminous interpretations of the symptoms of appendicitis. The prevalence of hernia is a further illustration of the evil of the persistence, not in this instance of a rudimentary body, but of a rudimentary condition. When man employed his hands as well as his feet for purposes of locomotion, the position of his abdominal viscera rendered the existence of the weak places innocuous. There was no tendency on the part of gravity to drag the gut out through these abdominal rings, and they acted admirably as conduits for the transmission of the spermatic cord in the male and the round ligament in the female. But when man assumed the upright posture and raised his eyes to the stars, the pressure of the abdominal contents was brought *en masse* on these now faulty structures, and he began to suffer from the evils consequent thereon. As we have already noted, the nails partake of this malignant propensity of rudimentary and recessive organs to obstruct the normal working of the human economy.

Most of the diseases affecting the general system find expression in ungual alteration. An acute illness will be marked by a transverse furrow, the matrix at the time having felt the systemic depression and yielded a feebler output. Chronic disorders are notoriously reflected in the nails. Note the clubbed fingers in chronic pulmonary and cardiac disease. Note also the cyanotic tint of failing circulation. Note the subungual pulse (or capillary pulse), the marked flux and reflux of the blood in the nail bed responding to systole and diastole in conditions where the peripheral capillaries are quickly filled and emptied, such as aortic regurgitation and anemia.

Rheumatism and gout, two metabolic derangements confounded of old and certainly possessing many common characteristics, produce the peculiar brittleness of the nails that is so much in evidence, and is known as onychorrhexis. Those whose nails split on every thread had best beware of fugitive pains about the joints, and endeavor to forestall the insidious advance of disabling arthritis. Owing to continually increasing metabolic disturbances, largely attributable to the immense consumption of beer and sweets among our people, and to faulty hereditary tendencies transmitted in a necessarily advancing ratio, this dyscrasia is manifestly growing fast. Ichthyosis occasionally affects the nails in like manner. Congenital lues may be revealed in a suppuration of the matrix and exfoliation of the nails, or in an arching of the nails from side to side until they assume the shape more or less complete of a bird's claw. Acquired lues like any other constitutional depressant may make its impression on the nails in transverse ridges, brittleness, and furrows. The cutaneous lesions may form in the matrix and heave up the nail into various distorted forms, or even produce exfoliation.

Chancre of the edge of the nail displays the characteristics of chancre elsewhere, and its recognition depends on remembering this possibility; but the commonest result is a paronychia, persistent, disabling, and malodorous. The usual signs of paronychia are present, namely, swelling, redness, and suppuration. The absence of pain is not so distinguishing a feature of this as it

is of most other luetic lesions. The position of the swelling exposes it to constant irritation, to which it gradually reacts in the usual way. This is a very costly complication for the patient, as it unfits him for many occupations and drags on interminably. It is easy to conceive the variety of pursuits in which a set of swollen finger ends redolent of cacosmia, would be absolutely prohibitive. Luetic paronychia means that the victim cannot work at anything that brings him in contact with the public. Fancy a waiter handing you a plate of soup with a thumb of that sort presenting! Fancy a barber fussing about your face exhaling such an odor! Fancy your dentist approaching your mouth with a drill clutched in such repulsive fingers! But it is not only in occupations having to do with the public that this repellant manifestation is deterrent and ruinous. The bulbous enlargements are a physical obstacle to the performance of many kinds of manual labor. This is true also of the nonspecific variety of paronychia. Eczema is undoubtedly the most prolific cause of this. It is observed in persons whose occupation necessitates the immersion of the hands in water. The nails themselves take on various deformities consequent on nutritional disturbances in the root. They may be thickened, ridged, furrowed, pigmented, and splotched. If we reflect that the nail is really the horny layer of the epidermis modified by circumstances, we shall be able to understand how the particular form of dermatitis known as eczema, produces such alterations. We see how other tissues are thickened, distorted, and stained by this chronic inflammation. It is not remarkable then that the horny analogue of the scarf skin should react in a similar way. One characteristic of the nail is that its denser structure, having received a pathological impression, will retain it indefinitely and sometimes permanently. Hence we may have persistence of the distortion long after the cause has ceased to operate.

The differential diagnosis between these two forms of paronychia is easy at times and at times very perplexing. Associated with other signs of lues, the classification presents little difficulty. Complement fixation is decisive. An evil odor is highly suggestive and sometimes conclusive. On the other side of the argument, preceding, concomitant, or subsequent manifestations of eczema, incline the judgment in that direction. Itching is added evidence. Lues does not itch, as a rule. Pain, owing to the almost invariable incidence of trauma, is not a reliable criterion. Aggravation by water is usual in eczema. Duration is exasperatingly long in both varieties, but almost interminable in the specific. The therapeutic test does not elicit a satisfactory response. Mercury and iodide of potassium and even salvarsan seem to exert very little influence at times on this obstinate condition. This may be owing to the frequency of secondary infection. We look for speedy control of the luetic element and are mystified by its persistence, overlooking the complication.

The treatment of nonspecific paronychia is the treatment of the underlying cause if that is detectable. As already stated, eczema appears most frequently in this relation. The proverbial obstinacy of this multiplex malady is accentuated in

the periungual variety. The lesions of the nail root are too deep seated to be reached by local applications with any thoroughness, and this buried portion of the nail acts as a constant irritant, maintaining a low but notoriously rebellious form of inflammation. The removal of the nail would certainly expedite recovery. This is not practicable in most instances, and the case must be conducted against tremendous odds. Augmenting the difficulty is the exposure of the damaged tissues to repeated injurious contacts. If the hands are to be used at all they can hardly escape these accidents. If a victim of this incapacitating infliction could have his hands tied up, and be washed and fed like a baby, some substantial progress might be made in the management of the case. This again is impracticable, so we can only hope by indefatigable perseverance to bring the process to a successful termination with the imperfect measures at our command. These comprise the various remedies of proved value in the treatment of "eczema". Laszar's paste, ichthyol in zinc oxide ointment, the diachylon ointment of Hebra, the ointment of ammoniated mercury in the strength of five per cent., the ointment of lead iodide in the strength of twelve per cent., the ointment of boric acid salicylated (a sort of Thiersch's lotion reduced to solid form), the sixteen to one solution of nitrate of silver in sweet spirits of nitre, dropped into the ungual groove and allowed to filter back over the diseased root, Fehling's solution used in the same way, and solution of mercuric chloride—these constitute the applications usually employed, with more or less satisfaction. None of them meet the indication of protection against violence, unless a cumbersome dressing is added. A readier, cleaner, and neater way of rising to the emergency is by the use of salicylated plaster in strengths suited to the condition of the diseased tissues. Here we have medicament and protection. It can be cut in strips and stretched across the diseased areas, thereby bringing the medicament in constant touch with its object and guarding against most of the petty traumatism that is such a marked factor in prolonging the mischief. It can be changed as indicated, every day, every other day, or twice a week. If the salicylic acid is contraindicated, zinc oxide can be substituted, or any of the drugs ordinarily employed can be incorporated in the plaster. Candidly it is my opinion that the mechanical protection is of more importance than the medicinal agent, if the latter is not irritating. If irritating, it assumes an importance of an objectionable kind, and should be immediately dispensed with.

Psoriasis, when it manifests itself in that locality at all, usually pits the nails, producing the speckled appearance suggestive of pin pricking. This does not occur very frequently, as the hands are not especially favored by the disease. It is not as disfiguring as the furrowing of eczema, and its importance lies in its diagnostic significance. More rarely still a patch of psoriasis appears on the bed and shows a brownish discoloration through the transparent horny covering elevating it to a greater or less degree, and perhaps splitting it in a haphazard manner, especially at the free extremity. This affection of the nail is as repulsive as any to which

it is liable, not even excepting ringworm. It results as a rule in permanent distortion of the nail. It is a noteworthy circumstance that prolonged and extensive involvement of the nail in the psoriatic process is unaccompanied as a rule by paronychia. In this particular it differs markedly from eczema which, as we have already seen, is a prolific cause of paronychia.

The treatment of psoriasis of the nails varies necessarily with the extent and character of the lesions. Pitting calls for no direct interference. Systemic treatment will accomplish as much for that as it is possible to accomplish. Arsenic pretty steadily pushed will eventually bring the attack under control, and the nails will partake of the general improvement. This holds good, though in a less degree, of the lesions in the matrix, for being deeper seated and confined beneath a resistant superstructure, there is a mass of epithelial débris heaped up which will require mechanical removal. It is necessary to scrape this away and assist the systemic action of the arsenic by the local application of agents like salicylic acid or chrysarobin, which are known to have a resolving effect on the lesions of psoriasis. The results are frequently disheartening and call for the exercise of tireless patience and persistence. If chrysarobin is used on the fingers, it is imperative for the patient to wear gloves to prevent conjunctivitis. It is fortunate that the more serious implication of the nails is unusual in psoriasis, or it would add to the miserable self consciousness of a hidden disfigurement the incapacity of a manifest distortion.

Ringworm is generally associated in our minds with a scaly, crusted, scalp in various degrees of denudation, with lumpy, oozing lesions of the bearded area, or with pretty circular figures on the hairless skin; we rarely connect it with the invasion of the matrix and the deformity of the nail. But the parasite luxuriates in the highly vascular tissue, piles up its elements into ugly masses, and completely wrecks the horny layer. These are of the same character as the scales on the scalp, but are packed closer and harder because of the peculiarity of their situation. The nail is raised, thickened, split and contorted. There is no salvation for the nail in this condition. It must be sacrificed or the disease cannot be eradicated. Even after its removal the parasitic elements will be found to be so firmly entrenched as to defy our most vigorous efforts for a discouragingly long period. Condensed and hardened into corneous masses, they must be curetted away again and again and the tract seared with a strong antiseptic before it will begin to come under control. Months may be consumed in this uphill labor. This is eventually rewarded, sometimes with a presentable nail, sometimes with a homely one. Acid nitrate of mercury, bichloride of mercury, ammoniated mercury, calomel, sulphur, salicylic acid, silver nitrate in sweet spirits of nitre, iodine, and beta naphthol may be employed for their destructive action on the parasite. Various strengths and combinations may be resorted to. The plan of strapping a piece of strong salicylic acid plaster around the end of the affected finger is eminently practical and just as effectual as any other form of medication. The di-

agnosis can be demonstrated by a scraping examined under the microscope. Independently of this, ringworm elsewhere on the body will indicate the nature of the ungual affection. One or two nails may be diseased or most of them. As a rule the greater number escape. This is remarkable in view of the contagiousness of the cause.

Onychomycosis from favus is always secondary to favus of the scalp. The pathological conditions are about the same and the treatment is identical. Favus being rare in this country, this complication is not often observed. In Norway, scabies (developed there in its intensest form) often invades the nail region. This is never seen here. Leprosy, especially the tubercular form, produces an onychia and paronychia; the nail being raised, thick, and rough, and eventually crumbling away. An ulceration or a tubercle may terminate the process. The streptococcus produces an acute paronychia known to the laity as a "run around." It is a trivial superficial abscess readily amenable to the most primitive surgical interference. It is often seen in strumous children with purulent conjunctivitis. Impetigo contagiosa may start it. It may originate in a hang-nail, or in a split cuticular fold. These trivial peri-ungual abscesses or whitlows are painful and disabling until the pus is liberated. In marked contradistinction to them are the painless whitlows that occur in the course of Morvan's disease, and are highly significant from a diagnostic standpoint. This peculiar affection of the spinal cord is characterized by a series of trophoneurotic, sensory and motor symptoms in which these painless whitlows stand out as distinct and luminous indicators.

Shedding of the nails is a common consequence of all forms of paronychia of an acute character. The old nail may be so closely followed by the new one as to leave no period of actual denudation. In the desquamation of scarlet fever, if the eruption has been intense, the nails of both hands and feet may fall. Sabouraud denies this utterly, but if his assertions run counter to our experience, the only sane course is to believe our own eyes, and credit the eminent Frenchman with having come in contact with cases of only moderate intensity. He is apt to be dogmatic to a degree and to leave out of consideration every qualifying condition. To illustrate this trait it will be only necessary to recall his declaration that lichen planus never relapses and that scabies is a venereal disease contracted only at night in bed.

The pityriasis rubra of Hebra (a disease of nervous origin and fatal prognosis) is distinguished in one particular from dermatitis exfoliativa, a form of toxic erythema, by the falling of the nails in the more serious malady. This is a differential point of grave moment, because it enables the physician to make a prognosis of a reassuring character in an avowedly terrifying dermatosis. It is wise for the general practitioner to grasp and retain this distinction, because the toxic erythemata are not at all uncommon and he may be called upon at any moment to relieve the patient's alarm. If he is qualified to do so, he will have performed a very essential service and gathered great professional renown. The opportunities to effect this latter meritorious object are not so many that we can afford to neglect

any of them. Shedding of the nails is also seen in pemphigus foliaceus, in tabes, in syringomyelia, in diabetes mellitus, in alopecia areata, and epidermolysis bullosa.

There is a remarkable though fortunately rare condition in the human subject remotely resembling the annual skin sloughing of the serpent in which there is a regular exfoliation of the nails at stated intervals. This is a trophoneurosis of unknown origin.

Another and very common cause of the loss of the nails, usually incomplete, but still quite considerable, is euphoniously known as onychophagia and popularly execrated as nail biting. This is also a neurosis, but not a trophoneurosis. There is an insensate and almost ungovernable desire to chew off every bit of nail tissue that can be grasped with the teeth. The disfigurement is often appalling. The end of the finger rolls over on to the bare and oozing matrix, trying to cover the sensitive area exposed by the gnawing neurotic. This objectionable person and his autocannibalistic activity are sufficiently in evidence everywhere to be a matter of general knowledge. We see him in the school, aged ten, and in the street car aged twenty years. He is shameless. He is possessed of but one dominating impulse to gnaw, gnaw, gnaw! No consideration of public decency or personal welfare will deter him for a moment. Unlike old Shylock, he is eventually able to get his pound of flesh without drawing one drop of blood. True, he takes it off himself and in instalments, but it shows that the impossible procedure that Shakespeare made such a long and exciting story about, is perfectly feasible to a seasoned nail biter. The adult nail biter is incurable by any means that I ever heard of. The adolescent may be trounced into a restraining sense of fear. The neurosis back of this atrocious habit is indefinable. It is akin to that which impels some persons to pull out every hair they can lay hold of on the face in spite of the immediate pain and frequent infections (trichotillomania). This sort of lunatic is also unclassified.

There are congenital nail defects accompanying similar defects in the teeth and hair. There may be pronounced thinning so that the nail curls up on the end, spoon fashion. This is associated with poor general nutrition. The reverse of this (onychchauxis) consists of an enlargement and thickening of the nail, sometimes to an extraordinary degree. As a congenital dystrophy, the cause of this is yet to find. As an acquired condition it accompanies acromegaly, where the extremities are uniformly and grotesquely enlarged. Another peculiar manifestation of congenital overgrowth is seen in the clawlike nails that adorn some otherwise normal feet. They have been immortalized by the resounding title of onychogryphosis. They are chiefly noteworthy as a curiosity.

We have nails white in spots, white in streaks, and white all over. These are sometimes seen in company with alopecia areata, evidently the analogue of the white hair associated with that peculiar neurosis. Leuconychia is the technical designation of this unimportant abnormality. The word is of no consequence if we remember the significance of the condition and can assure the patient

that it does not foretell any serious constitutional disturbance. White specking of the nails is also attributed to air bubbles. We have, therefore, seen three causes of this condition, viz., psoriasis, alopecia areata, and the inexplicable presence of air bubbles. The cause in any particular instance must be determined by the accompanying circumstances. Glossy skin due to injury to a nerve will cause thinning of the nail and marked curving, both longitudinally and transversely. Sclerodactylia will reduce it to a stump.

Something of the character of a patient may be gathered from the way in which he cares for his nails. We have had a glimpse of the fidgety, nervous, irresolute, and utterly offensive nail biter. A pretty accurate estimate of his mental make-up can be drawn from his wretched habit. Men who are dainty and circumstantial in the shaping and polishing of their nails, are apt to be of small bore and feeble masculinity. Men who cut their nails in an irregular haphazard way may be mentally engrossed or perturbed in spirit, but nevertheless on being roused, capable of giving a good account of themselves. Men with ragged, dirty nails are careless and unreliable. Close cut, even nails of a somewhat square effect indicate a resolute, calculating, and trustworthy personality. All this holds true only of the male sex. We expect that women, in keeping with the greater gentleness of their nature (apologies to the militant suffragette!) will strive for more artistic results in all external matters, and will therefore point and polish their nails in the most attractive manner. What is pretty in a woman becomes repellant in a man.

The treatment of such onychoses and perionychoses as are susceptible of improvement, has been noted as we progressed with our subject. In order to emphasize the most practical method of dealing with a very common combination of the two conditions, its consideration has been deferred to the end of the discussion. Ingrowing toe nail, always due to faulty footwear, begins as a paronychia from the irritation caused by the penetration of a foreign body, namely the encroaching edge of the nail. The resulting inflammatory reaction in the surrounding tissues, softens the enclosed horny border, producing an onychia. This altered and sloughy irritant aggravates the existing pyoderma, and it in turn encloses more nail in its exuberant granulations, and so the vicious process continues indefinitely. If the case is a very serious one, with a wealth of pouting granulations, the patient ought to go to bed. The surrounding nail should be slit down and removed *en masse*. The pyoderma should be handled on general principles, with wet antiseptic dressings and frequent resort to the nitrate of silver stick to cut down the rank overgrowth of morbid tissue. Given a milder case, where the patient is limping in dire discomfort, but has not reached the stage where he is utterly incapacitated, what shall we do? A strip of adhesive plaster caught on the edge of the diseased ungual fold and carried around under the toe toward the sound side, will work wonders in releasing the paronychia from the irritation of the encroaching nail, will give space for the forward and unimpeded outgrowth of the latter, and, with the assistance of the nitrate of silver stick and the most insignifi-

cant surgical intervention on the softened horny tissue, will quickly clean up the distressing condition. The principle of the method is in drawing the soft part away from the penetrating body. Try this to be convinced. It has the merit also of not scaring the patient.

An effort has been made to show the diagnostic possibilities of ungual abnormalities. It will be conceded that many general pathological entities are reflected in the nails and may be discovered by following the indications there impressed. Again as local disturbances, alterations in the nails are frequently of great moment because of their unsightliness and disabling quality. There is an old aphorism of homely origin that "a nod is as good as a wink to a blind man." The deviations from the normal, be they ever so slight, that show themselves in the ends of the fingers furnish hint enough of the underlying causes to the discerning eye. To those who are blind to these things a nod is as good as a wink, and neither will convey the slightest information.

323 WEST FOURTEENTH STREET.

FUNCTIONAL INTESTINAL STASIS; ITS CAUSE AND EFFECT.

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Intestinal stasis may be divided into two classes, namely, mechanical and functional. The first class includes diverticula, kinks, adhesions, bands, and external pressure, with rigid rectal muscles a predominating cause. The latter class (stasis) is due to many traceable causes and is the one which will receive exclusive attention here.

Functional stasis may be divided into two classes, localized and general. The first is usually found by very careful examination only. The latter is a general tympanic condition of the abdomen, easily found by the examining physician, as well as by the patient. Localized intestinal stasis has been shown to be most insidious, and this fact is responsible for its far reaching effects. The effects of general stasis are easily noted, on account of the general persistent bloating (tympanites). Among the many causes of functional stasis, named in their most frequent predisposing order, are diet, lack of oral hygiene (causing pyorrhea), lack of exercise (especially of the abdominal muscles), together with faulty digestive secretions of the stomach and intestines or both.

A diet rich in fats, oils, and their various combinations is most prone to cause a functional stasis, especially where continued over a period of years. Fats and oils are made especially noxious in this respect by being overheated, as in frying food stuffs. a process by which butyric acid is freed and passes into the stomach and intestines to irritate and cause fermentation, with resulting stasis for longer or shorter periods, which becomes permanent when this particular diet is persisted in. Pouring cream into hot coffee is a good example of this action of freeing butyric acid.

The constant swallowing of microorganisms from

suppurating teeth (pyorrhea), postnasal discharges, and infected bronchial secretions must, in time, contribute to gastrointestinal irritations and fermentations, which help, with the butyric acid, to produce stasis.

A sedentary life predisposes to stasis, inasmuch as the muscles of the abdomen are the last and least to receive exercise, thereby allowing them to lose tone and become flabby and nonresisting, when they are not in condition to resist an expanding gut, which is enlarging from constant fermentation within. In the presence of firm abdominal pressure, on the other hand, the gas due to fermentation would be forced on, and peristalsis would not be inhibited from gas pressure.

Any prolonged illness with fever has a tendency to alter gastrointestinal secretions, and this altered secretion may remain permanent, thereby exposing food to insufficient digestion, both in stomach and intestines, in which case it acts as an irritant to the intestinal walls and provokes fermentation with distention.

Stasis is a condition in which the gut or any portion of it has been temporarily, and at times permanently, injured from overdistention, and in this condition its function is interfered with in quite the same way as an emphysema or an overdistended urinary bladder, that is, its ability to contract is lost and peristalsis or muscular action is thereby inhibited.

In a condition of stasis the intestines lose many of their vital functions, in addition to this loss of peristalsis. One of the first drawbacks is its inability to prevent fermentation and a multiplication of the bacterial flora, far in excess of what might be termed harmless. Secondly, the intestinal wall has lost its power to prevent the migration of bacteria (Sequela of Scarlet Fever, *Denver Medical Times*, July, 1908), i. e., "The intestines should have the first care, allaying fermentation and eliminating its resultant toxins, and in fact, preventing or if already present, getting rid of any autointoxication and overdistention of the intestines and the resultant migration of *Bacillus coli communis*, which is certainly disseminated in this way, just as one finds a cystitis caused by the colon bacillus which has migrated from the large intestines, owing to injury or prolonged constipation." Later, other writers confirmed this migration of bacteria, due to stasis, into the surrounding tissues and lymph channels and finally into the circulating blood, there to continue as an active bacteriemia or not, depending upon the resistance or immunity of the patient.

Functional stasis is prone to occur in the caput cæcum coli, which is normally two and one half inches long and three inches in breadth (Gray). In intestinal, digestive, or fermentative disturbances, this is one place that the greater distention occurs. On account of its structure and anatomy (pendulous form), it offers greater opportunity for active fermentation and incubation of bacteria. Food products and intestinal debris fall into this pouch, and on account of its gravity it is raised with difficulty; as a result the intestinal contents remain until putrefaction takes place to a certain degree. This condition is augmented by the causes mentioned, diet, lack of oral hygiene, etc.

This cul-de-sac or "closed head" of the colon, in

function seems to act as a grease (filth) trap for the rest of the intestinal tract. Stasis in this portion of the gut may be responsible for the inflammation that occurs in and around the appendix.

The abolition or occlusion of the caput cæcum coli is possible while operating for acute or chronic appendicitis and without materially increasing the shock. This operation was done, at the suggestion of the writer, by Dr. Leonard Freeman, during an appendicectomy, after finding the caput cæcum coli greatly distended beyond its normal size. The additional operation was done by sewing a series of pleats near the point of junction of the small intestines with the colon. I believe this operation to be a rational measure for reducing this functional stasis, in case other measures fail.

The effect of such a functional stasis is to permit the migration of bacteria from the lumen of the intestines into the circulating blood, causing a bacteriemia, which, if it persists long enough, will lower the immune bodies (complement) and result in one of many possible infections.

One of the most common infections, following a bacteriemia and resulting from functional stasis, is infection of the kidneys (nephritis) traceable to the colon bacillus. (Bacteriemia, Infections and Bright's Disease, *Medical Record*, February 14, 1914.) Other conditions found and traceable to the colon bacillus were empyema, endocarditis, bronchiectasis, and bronchorrhea.

The mixed infections that accompany and cause bronchitis and asthma seem to be directly traceable to this localized functional stasis. One may rarely see Bright's disease, bronchitis or asthma or a tuberculous infection that is not accompanied by such a stasis. It is just as fair to believe that a stasis preceded these infections as to find it after infections have taken place. Entrance to the system of the tubercle bacillus is, in my opinion, chiefly by the intestinal route, and this stasis may arise either in adult life, or, as some writers believe in childhood, through a milk diet from a tuberculous mother or a tuberculous cow. Artificial feeding of infants is prone to cause bloating and stasis, and it may be good reasoning to suppose that infection by the tubercle bacillus occurs in childhood and remains latent until higher studies, work, or greater responsibilities begin in life, all of which have a tendency to lower physical resistance.

One typical case out of many will be described, which may contribute in confirming the subject matter preceding.

CASE. Miss C. McL., aged twenty years. Weight 103 pounds, height 5 feet 4 inches. Family history negative, except for digestive disturbances in mother. Rather irregular in eating and living, inasmuch as she lived in a poorly ventilated rooming house all her life and had light house-keeping meals or restaurant food. This young woman consulted me on account of bronchitis, husky voice, and nasal catarrh, believing she may have contracted a beginning tuberculous throat. *Physical examination* showed but slight localized changes in the lungs. Sputum was negative as to tubercle bacillus, but contained the usual bronchial mixed type of infection. As I had in mind the stasis that usually accompanies these infections, the abdomen was examined and the common condition of local functional stasis was found. Following the regular routine of examination after this, the blood pressure was found to be 140 mm. Hg. The urine contained albumin, a few casts, and other debris. An indicanuria was also present. A blood culture demonstrated colon bacillus infection of the

blood stream. My routine, which usually includes a culture of urine from catheterized ureters, in order to prove the same infection in front, as well as behind (in the blood stream) the kidneys, was not followed in the case here mentioned.

The treatment consisted in the regulation of diet, nose and throat cleansing (mild sprays and oil), abdominal massage (vibratory, electrical, and manual), injections of an autogenous vaccine and the intravenous injections of iodine. Recovery seemed complete within two months, cough and expectoration ceased, voice cleared, abdomen became flat, albumin disappeared, and weight increased to 118 pounds.

SUMMARY.

1. Unhygienic oral and nasal cavities, errors of diet, together with idiosyncrasies for different foods (fats and burnt greases, yolks of eggs, etc.) are actual or predisposing causes of localized functional intestinal stasis.

2. Infections such as nephritis (Bright's disease), bronchitis, empyema, tuberculosis, etc., apparently are directly traceable to this localized functional stasis.

3. Localized functional stasis must be remedied in order to make other treatment efficient and recovery possible.

4. Operative obliteration of a dilated caput cæcum coli is justifiable for the reduction of a localized functional stasis when it occurs in this locality (rarely elsewhere), and when other measures fail.

201 SYMES BUILDING.

BOILING WATER IN HYPERTHYROIDISM.

A Preliminary Communication.

By J. CHRISTOPHER O'DAY, M. D.,
Portland, Oregon.

As a preliminary to a paper, Carbohydrate Tolerance in Exophthalmic Goitre, which I have in process of preparation, I wish to record the following two most interesting cases. While the literature mentions the coexistence of glycosuria and hyperthyroidism, we have been unable to find where any definite plan of treatment in such cases has been mapped out. In a recent article by Miles F. Porter, of Fort Wayne, Ind., Boiling Water Injections into the Thyroid Gland for Hyperthyroidism (*Surgery, Gynecology, and Obstetrics*, January, 1915), he very kindly refers to my work with his method. At the time I sent him the list, however, with results, no cases of glycosuria had been encountered.

The point I wish to emphasize in the following report is that the Porter method gives us a means whereby this particular complication may be attacked without the least fear of precipitating a fatal postoperative acidosis. Our experience proved that the diabetic condition disappears in direct ratio with the steps of the boiling water destruction of the thyroid.

CASE I. Carl C., aged twenty-four years, entered Good Samaritan Hospital, August 22, 1914. Four months prior to this he began to feel "very nervous." He consulted Doctor Adix, who found sugar in urine, about 8 per cent. Parents were told that at this age the outlook was always grave. About six weeks after the nervousness, the right lobe of thyroid was seen to be enlarged and the eyes to protrude. Marked tremor was present. In the three months before his entering the hospital his weight had fallen between 35 and 40 pounds. All the classical symptoms of diabetes mellitus were present, thirst, ravenous appetite, polyuria, with specific gravity ranging from 1030

to 1038. One drop of the urine was capable of precipitating the Haines reagent. Unable to find in the literature other than the association of these two diseases, I undertook to control the one by the usual dieting, and the other by the boiling water injections after Porter. One dram was injected daily directly into the gland. August 28th, urine was negative. Carbohydrates were increased cautiously, but no return of the sugar could be detected. On the pretence of giving the last, but largest, injection of boiling water, patient was induced to take an anesthetic, after which the gland was cofferdammed after my method with normal saline, and then "stolen" after the method of Crile.

Recovery had been complete. Since the thyroidectomy not a single sign of the diabetic condition has returned. In short, every symptom of the two diseases has vanished. He has regained his normal weight and resumed his work as a stationary engineer.

CASE II. Mrs. G., aged forty years, mother of five children, came to us because of our success in Case I, November 14, 1914. For the past two and a half years this patient had been under treatment for what was regarded as a severe diabetes mellitus. Under restricted diet it was difficult to secure sugar free urine. As in Case I, this patient had all the symptoms of Graves's disease with those of diabetes. The method of Porter was advised for the goitre, in the hope that it might benefit the glycosuria. In this case the boiling water was used freely, two drams often being injected at a single sitting. My paper will show a table of relation between the injections of boiling water and the diminution of the sugar in the blood and urine. December 7th, we obtained the first sugar free urine, and from this time on her improvement was marvellous. February 6th, extirpation of the gland was accomplished as in Case I. Recovery progressed in an equally satisfactory manner, no sugar being present in the urine although she was under regular diet.

I wish here to express my thanks to Dr. Laurence Selling, who has looked after the sugar content of blood and urine during the foregoing procedures, and whose report will be incorporated in my paper.

204 MEDICAL BUILDING.

Treatment of Pemphigus.—T. Holobut and J. T. Lenartowicz, in *Dermatologische Wochenschrift* for January 10, 1914, report that in two cases of pemphigus subcutaneous injection of fluid obtained from the bullæ on the patient's own skin was employed. The process may be termed an autoserovaccination, various observers having found in the fluid of pemphigus lesions, microorganisms which might be the actual cause of the disease. The fluid was obtained by means of fine sterile pipettes, introduced at the apices of the larger clear bullæ, and was heated on the water bath to 56° or 58° C. for half an hour, to kill the organisms present. Some of the fluid from each tube was then placed on culture plates, to make sure of the absence of pyogenic bacteria. Corresponding portions of fluid were all transferred to a small sterile flask, 0.5 per cent. of phenol added, and kept in a cool place. The first patient treated was a little girl aged eight years. Subcutaneous injections of the fluid from the bullæ were begun. Six of these injections, each consisting of one c. c. of fluid, were administered; the temperature was lowered almost to normal and fresh bullæ became less frequent and extensive. The treatment had to be stopped for want of material to be injected. In the second case, in a boy of twelve years, from twenty-five c. c. of fluid from the bullæ, eighteen c. c. of injectable fluid was obtained, all of which was administered in twelve injections in the course of twenty-four days. The results were distinctly better even than in the first case.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLVI.—What is your experience in the treatment of pellagra? (Closed.)

CLVII.—How do you treat diarrhea? (Answers due not later than April 15th.)

CLVIII.—How do you treat heartburn? (Answers due not later than May 15th.)

CLIX.—What is the proper role of the dentist in the therapeutics of internal diseases? (Answers due not later than June 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

PRIZE QUESTION CLV.

HIGH FREQUENCY CURRENTS IN THE TREATMENT OF TUMORS OF THE BLADDER.

We regret to state that no precise answer, in our opinion, was received to Question CLV. Since formulating the question, we have thought that perhaps better answers would have been forthcoming if we had made it more general in its application. Tumors of the bladder interest the surgeon mainly; and believing that a discussion of the value of electricity in commoner conditions would interest a wide clientele, we have made some notes which we think will prove useful to the young student in therapeutics. We shall draw mainly upon our own experience for the information of our readers. As to the application of the high frequency currents, we will cite two instances, with which doctors are not too familiar—the use of the current in epidemic poliomyelitis and in prolapse of the colon.

We deny the impeachment of Doctor Fraser, who writes in the *American Journal of the Medical Sciences*, cxlviii, page i, 1914: "It is difficult to draw conclusions as to the relative efficacy of treatment; cases treated electrically do not appear to recover more rapidly than those that are let alone." Rewrite this sentence in its opposite meaning, and we have the doctrine of the most expert. "There is a formula," writes Lewis Jones (*Medical Electricity*, page 420), "in which the prognosis of infantile paralysis has been commonly summed up. It is as follows: If the ganglion cells supplying the muscle are destroyed, recovery must be impossible, and if the cells are not destroyed, treatment is unnecessary, because the patients will get well of their own accord. This formula is widely accepted, but it has done much harm." Similarly, it is stated by Sinclair Tousey in his new work (*Medical Electric-*

ity, page 493), "The ancient dictum that if reaction of degeneration has been present for at least three months regeneration may not be looked for is totally false." These statements coincide with our own experience. We have frequently seen electricity give a new turn to a case of infantile paraly-



FIG. 1.—Mrs. D. A., aged fifty-six years, showing prolapsed transverse colon. January 7, 1915.

sis; we have seen it open up new possibilities of treatment; in short, it invigorates, where drugs sometimes debilitate the system.

Much depends upon the apparatus and the mode of application. Bergonié has taught us that the best method is to introduce the current widely at the points of entry, and so lessen the sensation of the child's skin. We have used a large surface as an electrode, or one which enwraps the foot, as he recommends (*Journal médical français*, April 25,



FIG. 2.—Mrs. D. A., showing readjustment and emptying of the ascending, transverse, and descending colon after six weeks.

1911). The essence of the method is the use of strong currents and of long daily applications, for with rapid frequencies the currents do not flow equally through the cross section of the conducting wire. (Silvanus Thompson quoted by Lewis Jones, *op. cit.*, page 207). With very rapid oscillations

the conducting skin is very thin. This problem has been dealt with satisfactorily by a later writer, Bordier (*Archives d'électricité médicale*, 1914, page 645). It is well to quote the words of this writer,

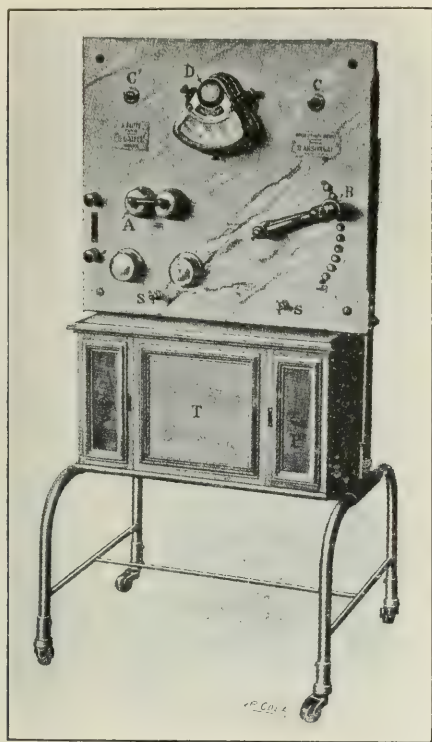


FIG. 3.—Apparatus for diathermia with the resonator of Broca. A, interrupter; B, rheostat; C C, resonator of Broca; D, thermal ampere meter; S S, connection. (*Archives d'électricité médicale, expérimentales et cliniques*, xxii, p. 197.)

for he is one of the few that have used the high frequency current in poliomyelitis. First, let us mention one point of great importance. It is well known that the temperature of the tissues is lowered in poliomyelitis. What is the value of this phenomenon in the treatment of poliomyelitis? He answers the question thus: "For three years I have employed diathermia. With the apparatus conducting unweakened electric oscillations, I have obtained effects which are truly remarkable." In infantile paralysis he applied a sponge electrode to the buttock or thigh, while the foot was placed in tepid water. The intensity of the current is raised to 300, and even 500 milliamperes. We ourselves have used this method with results so striking that we should like, if possible, to describe them in detail. The superiority of these new uses of electricity, with many precious illustrations, is set forth in the papers of d'Arsonval (*ibid*, 1914, p. 255) and of Bergonié (*ibid*, 1913, page 392).

For practical examples of these new methods—autocondensation, static wave currents, and thermal penetration—we are indebted to a correspondent, Dr. Charles H. Archibald, of New York. This brief glimpse at the powers of electricity is instructive. There are crises in the course of disease when the most conservative recognize the need for fundamental changes in the agents used. We know that the knife and that drugs will not always reach the seat of the malady. Electricity and the high fre-

quency currents are the key remedies in these cases.

The following case will show the effect of high frequency currents upon an hourglass and water trap stomach, with prolapse of the transverse colon attended with inertia, stasis, and an atonic state of the entire digestive tract.

CASE I. Mrs. D. A., aged fifty-nine years, married, applied for treatment January 7, 1915, complaining of great tenderness over the entire abdomen, and acute over appendicular region. Badly constipated and using oil and water enemas (no fever) by advice of the family doctor. An opaque meal was given and two radiographs were taken within seven hours. Fig. 1 shows the transverse colon prolapsed below the umbilicus, and Fig. 2 the effect of the high frequency current. Tenderness, tympanites, and distention were pronounced. The patient was placed before a 500 candle power leucodescent lamp for ten minutes to engorge the capillaries, then a thin lead sheet was placed over the entire abdomen and the static wave current of 100,000 volts passed through the bowels for thirty minutes every day for two weeks, then twice a week for a month, with the following results: The tenderness disappeared, bowels became regular, and general health and nutrition of the patient improved; she gained seven pounds weight in six weeks. When additional radiographs were taken of the stomach and bowel, using the same technic as before, the stomach had shortened, the cecum ascending and the transverse colon emptying quicker and assuming a more normal position, the patient completely comfortable and assuming her usual duties (appendicectomy was refused, owing to age and low vitality). The deep massage of the high frequency, static wave current vitalized the patient and restored nutrition, circulation, and normal functions to the digestive tract.

In arterial sclerosis, high blood pressure, induration, and cirrhosis, high frequency currents are most valuable in the form of autocondensation, thermal penetration, and static wave currents.

CASE II. D. A., aged seventy-six years, weight 200 pounds, applied to Doctor Archibald, October 15, 1914, suffering from dyspnea, severe headache, vertigo, and exhaustion. Blood pressure showed a reading of 310, pulse hard



FIG. 4.—Electrodes, after Bergonié (*Ibidem*, p. 394).

and full. Autocondensation daily was given for a week, then twice a week, then once a week for three months, when the blood pressure showed 190 and continued there, with complete subsidence of all other symptoms. The patient felt very comfortable and became active in the management of her home.

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Medical Queries and Answers.

The JOURNAL is now prepared to answer questions from subscribers on strictly medical topics, recent treatment, bibliography, operative technic, etc. Personal replies are sent by mail as soon as they can be properly prepared; later, such answers as seem to be of general professional interest will appear in this department. Subscribers are requested to confine their queries, general or personal, to matters of serious medical import.

What is the best practice as to inducing catharsis after appendectomy?—There is no doubt that most authorities object to cathartics which are internally applied. Castor oil, for instance, which Sonnenburg recommends, is generally condemned. (Hagmaier, Ueber 560 Operationen akuter Appendicitis, *Beiträge zur klin. Chir.*, lxxxvii, p. 638, 1913.) It is practical, and no more; though it may be praised for occasional utility in appendicitis (*Therapeutische Monatshefte*, p. 177, 1913). In peritonitis, on the other hand, rectal injections of olive oil (300 c. c.) seem the accepted remedy (Finkelnburg, *Die Therapie an den Bonner Universitätskliniken*, p. 53, 1914). Precise rules for the use of castor oil are given by Sorge (*Therapeutische Monatshefte*, *op. cit.*, p. 188). It may be administered in "chronic and subacute cases in hospitals; if inflammatory symptoms follow, operation is at once necessary. Castor oil is the best example of purgatives for these cases, but the use of any remedy that produces peristalsis is opposed by the latest authorities (Ebner, Aktuelle Fragen a. d. Gebiet der Appendizitislehre, *Med. Klinik*, Beihefte 6, 1910). As regards castor oil, Borchardt writes: "It is a highly dangerous remedy in doubtful cases of appendicitis; it should be carefully avoided." (*Zeit- und Streitfragen über akute Appendizitis und Peritonitis*, *Jahresb. f. ärztlich. Fortbildung*, 12, 1911). We may here take notice of the advice of Ochsner and Murphy, who reject all things that produce peristalsis. So too, Hagmaier; as a rule he uses no internal purgatives, but applies heat to the abdomen and rectal saline injections (*op. cit.*). Appendicitis and peritonitis are generators of toxins in the system. To get rid of these and move the bowels, Boljarski employs rectal saline injections. He devotes an entire article to the treatment of peritonitis after appendicitis. (*Die Behandlung der diffusen Peritonitis infolge von Appendicitis*, *Beiträge zur klin. Chir.*, 89, p. 514, 1914.) His experience is, that to remove or expel the toxins absorbed, intrarectal saline infusions were nearly always employed. He quotes a number of authors. You will find references to them at the end of his article. Sometimes the best thing, he says, is to puncture the bowel to relieve it of its contents (p. 514). Finkelnburg recommends rectal saline injections, with the addition of glycerin. (*Therapie an den Bonner Universi-*

tätskliniken, p. 53, 1914.) He, as well as others, say that the bowels should not be disturbed for seven days. The principle of these opinions is this, to give little by the mouth, and to avoid all purgatives. Sulphate of magnesium was formerly used. It raised the death rate. (Owen, *Appendicitis*, p. 152, 1914.) When purgatives are used, the form must depend upon observation of an individual's peculiar economy. In a long article by Zander, they appear to be unnecessary. (*Kritische Rückschau über die Appendicitisfälle der drei letzten Jahre in der chirurgischen Universitätsklinik zu Halle*, *Archiv. f. klin. Chir.*, cii, p. 944, 1913). There is also a list of references in this paper. (Haeberlin, *Beiträge zur klin. Chir.*, xc, p. 99.)

We have made use chiefly of German and Russian articles; our readers are doubtless well acquainted with Murphy's recent paper (*Surgical Clinics*, ii, p. 769, 1913). The articles quoted are the most complete; they may be praised for throwing a side light on the stationary characteristics of textbooks.

There is a theory that very thorough mastication of meat is contrary to Nature; What are your views?—You apply to us for our views on the subject; our opinion may be put a little less dogmatically than a dictum of Chittenden or Hammarsten. Where there is discord between Nature and experiment, we do not usually accept the latter. The view that the thorough chewing of meat is Nature's process seems to us to be true, though it certainly does not err on the side of novelty. It is supported by physiology, comparative anatomy, and the habits of mankind. However, it is not impossible that man may abjure these ancient habits and become as Gegenbaur says, psomophagic, or a bolter of his food (*Vergleichende Anatomie der Wirbelthiere*). Appetite and our senses serve us to the full as much as mechanical force, i. e., mastication. We think it quite possible that sight and smell are more provocative of digestion than the winding up of the jaws to champ independently of their owner's consciousness. We cannot imagine a more distressing sight than the spectacle of sensible men and women chewing gum. They must have ceased to discern the quality of true utility if they employ their energies in this way. The notion of chewing any kind of food as a stimulant for appetite can have entered the minds of those only who snatch at sweets and druggists' kickshaws that they may conceive a fictitious execution of digestive operations. Sweets, and chewing gum, and a regimen like Chittenden's (*The Nutrition of Man*) may refresh, and may even temporarily comfort the body, after labor of muscle or brain; they do not sustain it, not even in the lighter kinds of labor. They unseat digestion and pervert appetite. Work done by the aid of sweets, gum, and carbohydrate (*op. cit.*, p. 213) is mere experiment—an exhibition of the prodigious in effort or in physical competition, of the kind which college athletes or strong minded girls give, for example; they are of the few who work after artificial eating (Read, *Fads and Feeding*).

Concerning the problem—whether the digestive organs of man are after the fashion of psomophagic or of poltrophagic animals, as Gegenbaur says—the

article by Hibbert (*Lancet*, 1, p. 1334, 1905) is the source of much light, and should be carefully read over. On the whole, the material use of mastication has risen in estimation. (Hutchison, *Food and Dietetics*, p. 412.)

Therapeutic Notes.

Röntgen Ray Treatment of Uterine Fibromyoma.—Harris, in *Presse médicale* for July 11, 1914, is said to recommend highly the Bordier method of administering x ray treatment in cases of uterine fibroids. The procedure consists in giving a series of three treatments at intervals of approximately one month. At each of the three treatments constituting one series, the rays are directed through the lower abdomen from three different aspects, two lateral and the third median. Treatment thus applied in no instance caused a pronounced skin reaction. All the patients treated were over thirty-nine years of age, conservative treatment being deemed more justifiable in these than in younger women. In the first patient spoken of, who had a large fibroid extending up to the level of the umbilicus, with menorrhagia, prolonged but infrequent x ray sittings had proved of little or no value when the Bordier plan was adopted. In four months a complete menopause was effected, the growth showed a marked diminution in volume, pallor and anxious expression disappeared, and an appearance of normal strength was regained. In the third case mentioned, that of a woman aged forty-three years, pallor had become so pronounced, by reason of persistent metrorrhagia, that the lips and skin were of the same color. Two years before the beginning of the x ray treatment myomectomy had been attempted, without complete success owing to the patient's general condition. Almost as soon as the Bordier x ray treatment was begun, hemorrhage ceased to be a predominant symptom. The menopause set in after the third series of treatments, and after the fifth the anemic appearance had given way to a normal coloration of the integuments. In the remaining cases reported, equally satisfactory results were obtained. On the whole, upon comparison of the effects of x ray and surgical treatment in fibromyoma cases, the author is disposed to set aside a distinct field of use for the former, especially in cases where, owing to poor general condition, a radical surgical procedure is not likely to be well borne.

Treatment of Varicose Veins.—Joly, in *Gazette médicale belge* for May 21, 1914, is credited with the following description of mechanotherapeutic measures to be employed in the treatment of varicose veins of the lower extremities: The subject should assume the recumbent position, with the arms extended above the head, in line with the body. Various movements of the limb or limbs are then to be executed: 1. Simple elevation of the limb to a vertical position, that is, until it is at a right angle to the trunk. 2. Flexion and extension of the toes, then of the feet, back and forth. 3. Rotation of the foot alternately from one side to the other. 4. Flexion of the leg on the thigh, followed by extension. 5. With the leg flexed on the thigh, flexion of the

thigh on the pelvis, followed by extension. 6. Flexion of the limb on the pelvis, the limb being extended at the knee; the limb should then be allowed to descend to the horizontal position. 7. Movements of adduction and abduction of the limb, without flexion at the knee. 8. Rotation and circumduction, without flexion at the knee.

In carrying out these movements the two limbs should at first be exercised alternately, but later simultaneously. The periods of exercise should be short—from two to ten minutes—but the procedure should be gone through regularly morning and evening, for weeks or months. Rest in complete recumbency for a few minutes should follow each exercise period. Hydrotherapy and alcohol rubs are good sequential measures. Respiratory gymnastics may with advantage be combined with the limb exercises, to improve the general circulation mechanically and promote oxygenation. The patient should breathe in at the moment of muscular contraction, and out along with the relaxation.

In complicated cases of varicose veins the exercises may be proceeded with,—but in a mild, gentle form only,—except in cases with acute phlebitis, local pain (phlebalgia), cellulitis, neuritis, and extensive and bleeding ulcers, in which this form of treatment is not indicated. In the cases with phlebitis, termination of the acute process must first be carefully awaited and the movements then begun only with caution, passive motion being alone used in the beginning. On the other hand, in the presence of a periphlebitis only, early exercise treatment is indicated. Edema due to weakness of the veins generally yields to the mechanical measures described,—so too, ulceration and eczema. In the far less frequent cases of varicose veins in the upper extremities, analogous movements are of value, viz., elevation, extension, without flexion at first, then with flexion. In varicosities at the neck and throat, flexion backward and forward and rotation to the right and left should be ordered. In varices of the trunk, breathing exercises, together with movements calculated to develop the abdominal musculature, are particularly appropriate.

Carminatives.—Wegele, in his work on the *Therapeutics of the Gastrointestinal Tract*, refers to infusions of the following drugs as being useful for carminative purposes: Peppermint, fennel, anise, caraway, and valerian. The infusions should be prepared from one or two teaspoonfuls of the drug, added to one tumblerful of water. The administration of one or two drops of peppermint oil on a piece of sugar is also an efficient measure. The following combination of drugs is of advantage in meteorism:

R Olei fœniculi, }ãã m lxxx (5 grams);
Olei menthæ piperitæ, }
Magnesii oxidi,gr. lxxv (5 grams);
Extracti nucis vomicæ,gr. iss (0.1 gram);
Extracti belladonnæ foliorum,....gr. ii (0.15 gram).

M. et ft. in pilulas No. c.

Sig.: Two to three pills three times daily.

Boas is credited with the following formula:

R Mentholi pulveris,gr. xxx (2 grams);
Bismuthi subsalicylatis,gr. lxxv (5 grams);
Magnesii oxidi,3ix (35 grams).

M. et ft. pulvis.

Sig.: One teaspoonful three times a day after meals.

NEW YORK MEDICAL JOURNAL

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and The Medical News.***A Weekly Review of Medicine.*

EDITORS

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NEW YORK, SATURDAY, APRIL 3, 1915.

**COOPERATION WITH THE CHINESE IN
MEDICAL EDUCATION.**

Under this heading Dr. F. C. Yen, of the Yale Hospital staff at Changsha, read before the biennial conference of the China Medical Association, at Shanghai, February 1 to 5, 1915, the record of the inauguration of a new phase of medical education, a phase which promises a development adequate to meet the medical needs of China in the future. China needs doctors; first of all for meeting and solving her problems of public health; to meet the sanitary requirements of her economic development; for her army and navy; for teachers; and for civil practice. To furnish all these doctors there is no sufficient provision; the institutions in which they must be trained are largely in the future.

Various difficulties have beset the path of the present missionary and government medical schools in China; they have lacked funds; they have been inefficient from poor equipment, small staffs, and improperly trained men. They have sustained the suspicion and even hostility of the Chinese, have failed to secure interest and support, and have had low standards. The movement described by Doctor Yen is the Hunan-Yale Medical School at Changsha, the capital of Hunan Province. This institution has been put on a substantial basis by the Chinese and is being watched, both as an experiment and as a

model. It exists under a contract of cooperation drawn up between Yale-in-China in Changsha, and an incorporated association of Chinese representing the government of Hunan Province. Power of control lies with a joint board of managers, of whom ten are Chinese and ten are selected by Yale. The government undertakes to supply buildings for school purposes to cost \$155,000, Mex., nine acres of land worth \$50,000, and an annual sum of \$50,000 toward maintenance expense. The government has also given buildings worth \$50,000 for temporary quarters until the completion of permanent buildings on the new campus. Yale agrees to furnish a medical staff of fifteen men and a teaching hospital to cost \$150,000, gold. English is to be the language of instruction, and the Chinese have taken an unexpected stand for high ideals in scholarship and equipment.

The Hunan-Yale institution has now in operation a medical preparatory school, training schools for men and women nurses respectively, and a well equipped hospital. A research institute is to be added later. The movement has twice received approval from the cabinet of Yuan Shih-kai; it has been supported by three provincial governors and two political parties of opposite views, and has made friends of all. Its peculiar merit lies in the fact that it is a cooperation on equal terms between Chinese and Americans. The Chinese feel a proprietary interest and pride in it. Never before has the Chinese government entered into such an undertaking, and the fact that it has done so here and that the Hunan-Yale Medical School is gathering strength and inspiring confidence in the Chinese themselves, are the best guarantees of its permanency. Yale and the western medical profession of China are to be congratulated on the auspicious inauguration of so promising an institution.

A NOVEL PRIZE DISCUSSION.

We wish to draw the attention of our surgeon dentist friends as well as of general practitioners to Question CLIX in our Prize Discussions, announced for the first time in this issue of the JOURNAL, What is the proper role of the dentist in the therapeutics of internal diseases? We presume that all practitioners begin a physical examination with an inspection of the teeth. Most of them go no further, however, and content themselves with a recommendation to visit the dentist if the denture is very obviously imperfect. How many of them recognize the exact role of the dentist, not only in pyorrhœa alveolaris and caries, for example, but in the various forms of dyspepsia, colonic stasis, arthritis, and other general conditions where the dental factor is

not manifest? This question concerning the role of the dentist is of prime importance, as any bacteriologist can testify, and we are in hopes of eliciting some thoughtful responses from members of both professions.

THE MEANING OF FAITH CURES.

Few questions should appeal to the physician more profoundly than the meaning of the "faith cures" and other extraprofessional cures which flourish so extensively throughout the world. The medical charlatan, the quack, the patent medicine dealer, the enthusiastic and sincere faddist, and the host of other individuals who foist their "cures" on the public all produce results of a certain sort, leading in many instances to increased health and happiness for certain classes of people. Many explanations have been offered for this peculiar phenomenon. Suggestion has been invoked to explain the frequently remarkable and sensational results. Such works as Sidis's *Psychology of Suggestion* and LeBon's *The Crowd, A Study of the Popular Mind*, are of the greatest value; but by limiting our discussion to suggestion alone, we are not really getting down to the fundamental transformation which has taken place within the patient.

White, in a recent paper on this subject (*American Journal of Public Health*, iv, 3), deals with the problem in a very interesting manner. It may be agreed that the great mass of the people, particularly those who are not absolutely well mentally, feel keenly the great need for better health, particularly better mental health, which means happiness and peace of mind. The cry for help must be ministered to in one way or another, and the host of medical, religious, even political and sociological sects of various sorts endeavor to do so. Some of those who thus respond to the call are sincere, and others are insincere and knowingly exploit the weaknesses of people.

Now, it is plain to one who views this problem in a disinterested fashion, that these various means must have all cured the same sort of ills. It is but logical to conclude that, when a certain kind of illness is cured by various means, under all sorts of conditions and circumstances, nothing in the agent applied or employed could have really had anything to do in a direct way with the subsequent recovery. It is also logical to conclude that the most that the particular remedies employed have done was to awaken within the person and cause him to put to use, those powers which, if rightly used by him, could of themselves make him well. Consequently, although it may be stated that the patient has been

cured by suggestion or by faith, we should not be stating the full truth unless we added that the faith thus awakened in the patient is, fundamentally and essentially, faith not in the practitioner but in himself. But the weakness of all such faith cures, no matter how sincere the healer may have been, is that the patient—and as a rule the practitioner himself—is not much better off after the storm has spent its force than he was before, for the simple but important reason that he himself does not at all understand what has taken place. He has not been made to know and to feel the throb of those reserve sources of energy and those latent powers which exist within him and which can accomplish great things for his mental health, equipoise, and happiness, if he will but permit them to come to the surface and to dominate his life forces. Self knowledge has not been achieved; hence real self control or self direction cannot result.

TUBERCULOUS TRAVELERS.

In former days when one community could carry on its individual existence with very little intercourse with adjacent cities or towns, there was comparatively little danger from tuberculous patients, who, as a rule, lived and died in one place. In these days of rapid communication the problems to be faced are very different. Neither person nor community can remain free from intercourse with others, and it is a matter of importance to know what are the dangers of transitory contact.

Foster (*Public Health Reports*, March 12) takes up the question of the interstate migration of tuberculous persons so far as North and South Carolina are involved. It is interesting, and in a way comforting to know that the migration of such patients is less than formerly. Foster calls attention to the predisposing conditions of crowding and poor ventilation that exist in the sleeping cars, in spite of which, however, the danger of infection to other travelers and to employees seems to be not great. This may be due to some extent to the short exposure or, as many believe, to tuberculous infection occurring ordinarily in childhood. In addition, however, the railroad company takes most excellent precautions; very efficient methods are employed at Asheville, N. C., for the disinfection and cleaning of the coaches. After the thorough treatment they receive, it is difficult to believe that there can be much danger of infection.

Inasmuch as we have become such a nation of travelers, it gives a contented feeling to realize that our health is not being specially endangered during our long, sometimes transcontinental trips.

PROPHYLACTIC VACCINES.

At a meeting of the Liverpool Medical Institution, reported in the *Lancet* for March 13th, Professor Ernest E. Glynn read a paper on the Principles and Practice of the Prophylactic Use of Typhoid and Other Vaccines, in which he pointed out that man might acquire immunity to typhoid fever naturally by contracting the disease. This was associated with a great increase of antibodies in his serum. Animals might also acquire active immunity to typhoid fever artificially by vaccines; this was also associated with a great increase of antibodies. After referring to the terrible mortality from typhoid fever in recent wars, and giving a short account of the introduction of typhoid vaccines by Wright in 1896, he reported statistics from Britain, America, France, Germany, Japan, and Italy, which demonstrated the great reduction in typhoid fever incidence and mortality as the result of antityphoid inoculation. The objections of antivaccinationists and others were next referred to. In the author's opinion the prophylactic use of typhoid vaccine in the British army was based on sound scientific principles, and was confirmed by practical experience from all parts of the world. He vigorously denounced the opposition of the antivaccinationists at the present critical time as criminal. After some discussion of the paper, a resolution was carried to the effect that the meeting express its strong conviction that the time had come to make antityphoid inoculation compulsory in the British army.

Elsewhere the *Lancet* reports the publication by the War Office of a table showing the distribution of typhoid fever cases among British soldiers in the field among the uninoculated, the fully inoculated, and the partially protected. Among the uninoculated there were 359 cases with forty-eight deaths (13.37 per cent.); among those fully inoculated within two years (two doses), 111 cases with one death (0.9 per cent.); and among the partially protected (one dose), 136 cases with one death (0.73 per cent.).

SOME REPORTED RESULTS OF AUTOTHERAPY.

We reproduce without comment the report of M. Brookes, first class military surgeon at Kindat, who communicates to the *Indian Medical Gazette* for February, 1915, the results of using Duncan's autotherapy (Autogenous Vaccines in the Treatment of Disease, NEW YORK MEDICAL JOURNAL, December 14 and 21, 1912) in four cases which came under his observation. In Cases I and III, boric acid, hydrogen peroxide, phenol, etc., were freely used at first, without result. In Case I, a moist dressing with a thick pad of lint soaked in boiling water was then applied to the two abscesses on the neck, and the next morning six drops of the pus were squeezed out of the dressing and this was given internally as an emulsion in an ounce of boiled water. This was repeated for six days. The suppuration and sloughing ceased and the ulcer granulated from the bottom. The patient was a month and a half in hospital, however, owing to general debility. In Case II, two abscesses on the front and left side of

the neck were incised freely under the usual antiseptic precautions. The next morning pus from the dressings as mentioned above was administered in six minim daily doses to an ounce of water, for a week. The patient was discharged after a fortnight, completely recovered.

Case III was that of a male Hindu, twenty-five years old, who was admitted to the hospital in a moribund condition after two months' fever and starvation. He had a large patch of bed sore occupying a portion of the lumbar and the whole of the sacral region; the base of the ulcer reached down to bone, its surface was covered with a thick black slough, and there was a very offensive discharge. After procedures as mentioned above, the patient was given six drops of pus from wet dressings daily for a week; the discharge then became markedly less and the granulations more healthy. Although repair was delayed owing to his extremely debilitated condition, within six weeks' time the ulcer had completely healed. He was in a lethargic state for a month after admission, and appeared at first to be in a hopeless condition. In Case IV, that of a male European, thirty-three years of age, an extra-capsular abscess of the knee joint had developed after a fall and had been insufficiently opened by the attending physician. The original incision was enlarged, and five drops of pus were drawn up into a sterilized hypodermic syringe directly out of the wound. This was emulsified with an ounce of boiled water and given to the patient morning and evening. Twenty-four hours later there was scarcely any purulent discharge, but sufficient was obtained to repeat the internal administration morning and evening. On the third day, there was only a slight opaque watery discharge tinged with blood, five minims of which were given once only. Four days later, a week after treatment, the operation wound had completely healed.

THE SEVENTH PAN AMERICAN MEDICAL CONGRESS.

In pursuance of a joint resolution of Congress the President of the United States has issued invitations to the governments of twenty-four American countries inviting them to send delegates to the seventh Pan American Medical Congress, which will be held in the grounds of the San Francisco Exposition from June 17th to 21st. This will be the second time that the congress has been held in the United States. The first congress was held in Washington in September, 1894, and was largely attended by both the physicians of Latin America and those of the United States. The organization of that congress was inspired by Dr. William Pepper, of the University of Pennsylvania, and received the cordial support of James G. Blaine, then Secretary of State, and of the American Medical Association. Since that time congresses have been held in Mexico, in 1897; in Cuba, in 1901; in Panama, in 1904; in Guatemala, in 1907; and in Peru, in 1913. The responses which have been received to the Presidential invitations indicate that there will be a large and representative attendance from foreign countries. Physicians of the United States who desire

to take part in the congress should correspond with the secretary general, Dr. Ramon Guiteras, 80 Madison Avenue, New York.

The congress has been arranged for the week immediately preceding the meeting of the American Medical Association and the College of Surgeons, so that the three meetings can be covered in one trip.

Special Communications.

THORACOPAGUS LATERALIS.

BY R. H. WILSON, M. D.,
Martin's Ferry, Ohio.

This remarkable case occurred in the practice of Dr. J. L. Hitchcock, of Connorsville, Ohio, who was called at 6 a. m., November 16, 1914, to see an Italian woman who had been in labor about six hours. Upon examination he found apparently a shoulder presentation, although there seemed to be, in addition, some abnormal conformation of the



FIG. 1.—Dr. I. L. Hitchcock's case of thoracopagus lateralis.

child. He called in the assistance of Dr. J. M. Hunter. To hasten the delivery, podalic version was performed. Not until the lower extremities and trunk were delivered and the finger inserted between the two necks, was the nature of the monster known. The heads were delivered side by side. Delivery was complete at 8 o'clock. A laceration of only the first degree was produced. Death of the child occurred just before the heads were delivered, owing to the pressure on the cord.

The child was full term, of male sex, and weighed six pounds. It was well proportioned, except that the chest and shoulders were unusually broad. The

facial expression of both heads was possibly a little aged. This is the first born of Mr. and Mrs. F. D., both Italian. The mother is twenty-two years old, weighs 115 pounds, and is five feet two inches tall. The father is a well built man, twenty-three years



FIG. 2.—X ray picture, by Dr. W. A. Quimby, of the monster shown in Fig. 1.

of age. Both parents give a family history of twins. The following is the x ray report made by Dr. W. A. Quimby, of Wheeling, W. Va., who kindly furnished the fine illustrations. The two heads are well formed. The spinal columns show the usual development, but the bodies of the vertebræ are rotated to the median line. The second to twelfth ribs inclusive to the mesial side of both spines have fused together, bridging the space between the two columns. The two first ribs between the columns are immature. The right and left shoulders show their respective clavicles. A third clavicle arises on the proper level and extends directly upward in the median line between the two necks. The fragment of the fourth clavicle lies close to this one just described.

There are two hearts in this chest. There are no signs of air having entered the lungs. There is but one pelvis.

Prophylaxis of Pediculosis, by Stephan Weidenfeld and Erwin Pulay.—Orange and anise oils and petroleum have been used effectively as prophylactics against lice. (*Wiener klinische Wochenschrift*, February 11, 1915.)

News Items.

Change of Address.—Dr. Adolph H. Urban, to 1207 Avenue N, Brooklyn, N. Y.

Jefferson Hospital Clinical Society.—At the annual meeting of this society, held in Philadelphia, on Friday, March 19th, the following officers were elected: President, Dr. John M. Fisher; vice-president, Dr. E. J. G. Beardsley; secretary, Dr. Erwin D. Funk; treasurer, Dr. Clarence D. Smith.

Banquet of Medical Alumni of the University of Pennsylvania.—The thirty-fifth anniversary of the class of 1880 of the medical department of the University of Pennsylvania was celebrated on the evening of March 15th by a banquet at the Hotel Colonnade, Philadelphia. Dr. Lewis H. Taylor, of Wilkes-Barre, was toastmaster, and Dr. James Tyson, of Philadelphia, delivered an address.

The Occupational Disease Bill.—Senator Lawson, of Brooklyn, has introduced a measure into the legislature of the State of New York, requiring employers to provide reasonably effective devices to prevent the contraction by their employees of illness or disease incidental to the work. The employer must also provide medical examination at least once a month to all employees exposed to dust, fumes, or solutions of lead.

A New York State Wood Alcohol Bill has been introduced into the Assembly of the State of New York by Mr. Chace, requiring that wood alcohol shall be distinctly labeled: "Poison, wood naphtha, or wood alcohol. It is unlawful to use this fluid in any article of food, beverage, or medicinal or toilet preparation for human use, internally or externally." The label must also bear a skull and crossbones and the name and address of the maker or seller, printed conspicuously in red ink.

New Home for the American Red Cross Society.—On Saturday, March 27th, the cornerstone was laid of the new Red Cross building, which is to be erected in Washington, D. C., as a memorial to the women of the Civil War. The building and site will cost \$800,000, of which \$400,000 was appropriated by Congress and the remainder raised by private subscription. All the branches of the Red Cross Society, with its varied activities in peace and war, will have accommodations in this building.

Special Medical Board for Atypical Children at Randall's Island Dismissed.—Following an investigation conducted by the General Medical Board of Randall's Island, Commissioner Kingsbury has abolished the special medical board for the department of atypical children, including feeble minded, epileptic, and idiotic children. There were only six members on the board, three members having resigned some time ago. The general medical board will be restored to its former duties in charge of the entire medical service at Randall's Island.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, April 5th, Wills Hospital Ophthalmic Society, Academy of Surgery, Philadelphia Clinical Association; Tuesday, April 6th, Aid Association of the Philadelphia County Society (directors), Medical Examiners' Association, Philadelphia Laryngological Society; Wednesday, April 7th, Physicians' Motor Club (directors), College of Physicians, Lebanon Hospital Medical Society; Thursday, April 8th, Polyclinic Ophthalmic Society, Pathological Society; Friday, April 9th, Northern Medical Association, Southeast Branch of the County Medical Society.

Status of the Physician Prescribing Narcotics under the Harrison Act.—The Commissioner of Internal Revenue has received numerous questions from physicians as to the latitude which may be allowed them in the prescribing of coca and opium and their derivatives under the Harrison antinarcotic law. No rule has been laid down, except that the physician must prescribe these drugs in good faith only and in actual practice or in personal attendance upon patients requiring medical attention. Where serious illness has resulted from the habitual use of these drugs, it is understood that physicians will be authorized in the course of legitimate practice to prescribe so as to relieve the user from the effects of the inability to obtain the drugs. The Commissioner of Internal Revenue has declined to pass upon this point, leaving it to the conscience of the physician and later to the jurisdiction of the court when cases are brought before it.

The Medical College of Virginia.—At a special meeting of the board of managers of this institution, practically all the members of the faculty were reelected, the only changes being the following: Dr. F. H. Hanes elected professor of pharmacology and therapeutics to succeed Dr. Francis W. Upshur, resigned; Dr. Roshier W. Miller, elected associate professor of materia medica, to succeed Dr. Leslie B. Wiggs, resigned; Dr. Greer Baughman elected professor of obstetrics, to succeed the late Dr. John F. Winn.

The Warren Triennial Prize of the Massachusetts General Hospital.—This prize was founded by the late Dr. J. Mason Warren in memory of his father and his will provides that the accumulated interest of the fund shall be awarded every three years for the best dissertation received on some special subject in physiology, surgery, or pathological anatomy, the arbiters being the physicians and surgeons of the Massachusetts General Hospital. The prize will be awarded in 1916, the amount being \$500. Essays submitted in competition will be received until April 14, 1916. For full particulars regarding the prize, address Dr. Frederic A. Washburn, resident physician of the Massachusetts General Hospital, Boston.

The American Red Cross Sanitary Commission.—Dr. Richard P. Strong, professor of tropical diseases at the Harvard Medical School, has been appointed leader of this commission, which will assemble in Salonica about the middle of next month and proceed to the districts of Serbia and Austria-Hungary which are stricken with epidemics of typhus, cholera, and other contagious diseases. The commission will be supported by the Red Cross and the Rockefeller Foundation. Doctor Strong has already sailed for Greece, and the rest of the expedition will sail soon. It includes Dr. Thomas W. Jackson, of Philadelphia; Dr. Hans Zinsser, professor of bacteriology, Columbia University; Dr. Andrew W. Sellards, Dr. George C. Shattuck, and Dr. Francis B. Grinnell, of the Harvard Medical School. Doctor Nicolle, the French expert on typhus, has been invited to cooperate with the commission.

A Graduate Course in Tuberculosis at the Philadelphia General Hospital.—Announcement is made that a postgraduate course of instruction in diseases of the lungs and physical diagnosis will be given by the chiefs of staff of the tuberculosis department of the Philadelphia General Hospital during the three weeks from Monday, April 12th, to Friday, April 30th, inclusive. The classes will be held daily, from 4 to 6 p. m., except on Saturdays and Sundays. The course has been systematically arranged and, aside from bedside teaching, will include clinical talks upon terms and definitions, methods of physical examination and diagnosis, principles of social service work, treatment, immunity, specific therapy, etc. Opportunity will be given wherever possible for post mortem examinations. The wards of the hospital contain over 400 patients in all stages of pulmonary tuberculosis, and therefore offer unusual facilities for the study of this disease.

Personal.—Surgeon Archibald M. Fauntleroy, of the Medical Corps of the United States Navy, has been instructed by Secretary Daniels to make an observation tour of the war hospitals of England, France, and Belgium.

Dr. Herbert M. Evans, associate professor of anatomy in the Johns Hopkins University and research associate in the department of embryology of the Carnegie Institute, Washington, D. C., has accepted the chair of anatomy in the University of California and the directorship of the department of anatomy. He will assume his new duties on July 1st.

Dr. George William Bartelmez and Dr. Elbert Clark have been made assistant professors in the department of anatomy of the University of Chicago.

Arthur A. Noyes, director of the research laboratory of the Massachusetts Institute of Technology, has been awarded the Willard Gibbs medal, founded by William A. Converse, of Chicago.

Dr. J. N. Hurty, of Indianapolis, has been appointed resident of the Indiana Sanitary and Water Supply Association.

Major C. J. S. Miller, who is a medical officer of the Pennsylvania National Guard, is serving with the British Red Cross in Europe.

Dr. R. A. Reeves has resigned from the chair of ophthalmology in the University of Toronto and has become professor emeritus.

Proposed Site for the New Presbyterian Hospital.—

The Presbyterian Hospital has taken an option on the old American League Baseball Park, which comprises nine and one half acres in the upper Washington Heights district, New York, as a site for the new buildings of the institution. This property, which is situated on Fort Washington Avenue and 165th to 167th Streets, is regarded with special favor as a site because it would bring the hospital nearer to Columbia University, and at an early date the trustees will decide definitely upon the advisability of moving the hospital to the upper west side of the city. For more than seven years the hospital has been looking about for a new home. In 1908, Mr. John S. Kennedy, who was a trustee of the institution for many years before his death in 1909, gave the hospital \$1,000,000 toward the construction of new buildings, and a few months later he bought property on Avenue A, fronting the East River, presenting it to the hospital as a site. If the trustees decide to move the institution up town, this property will be sold.

Interstate Association of Anesthetists.—The Interstate Association of Anesthetists will hold its organization meeting in conjunction with the Ohio State Medical Association, in Cincinnati, May 4 and 5, 1915, when an elaborate scientific program, devoted exclusively to recent advances in anesthesia and analgesia, will be presented. Headquarters, assembly room, and exhibits will be in the new Hotel Gibson, in which all the sections of the Ohio State Medical Association will also meet. An informal organization dinner will be served on the evening of May 4th, after which the visiting surgeons will be the guests, at a smoker, of the local entertainment committee, headed by Dr. E. O. Smith. Visiting ladies will be entertained by Dr. Nora Crotty and her committee at a reception and theatre party.

Anesthetists, surgical and dental, as well as surgeons and general practitioners who wish to participate in the proceedings, are cordially invited to attend. For further information and dinner reservations, address F. H. McMechan, M.D., secretary, 1044 Wesley Avenue, Cincinnati, Ohio.

Cold Weather Brings Pneumonia and Grippe.—The most noteworthy feature of the mortality during the past week was the large increase in the number of deaths reported from pneumonia, the total number being 380 against 305 during the corresponding week of 1914. This was undoubtedly due to the sudden general increase in the prevalence of influenza (grippe), the number of deaths from this cause being 28 against 18 in the corresponding week of 1914. Influenza probably had something to do also with the increase of 19 deaths from pulmonary tuberculosis. The mortality from other infectious diseases was considerably below that of 1914, especially from measles, scarlet fever, diphtheria and croup, and diarrheal diseases.

There were 1,750 deaths in this city last week, a death rate of 15.72 per 1,000 of the population against 1,768 deaths and a rate of 16.52 during the corresponding week of 1914. This is a decrease of 0.8 point, equivalent to a relative decrease of 89 deaths. The death rate for the first thirteen weeks of 1915 was 14.22 per 1,000 of the population against 15.60 for the corresponding period of 1914, a decrease of 1.38 point.

To Amend the Boylan Antinarcotic Law.—At a conference held in Albany on March 24th between the representatives of the New York State Pharmaceutical Association, the New York State Board of Pharmacy, the Drug Trade Section of the Trade and Transportation, the Society for the Prevention of Crime, the New York Antinarcotic League, and the district attorney of the County of New York and of the County of Kings, a bill known as the Bloch bill was indorsed, providing a number of minor amendments to the Boylan bill the majority of which tend to bring it into accordance with the Harrison National antinarcotic law. The bill also permits the State Department of Health to approve the order blanks now used by the Internal Revenue Department under the Harrison law, so that if the act becomes a law only one blank need be filled out. The Bloch bill is more specific, however, than the Harrison law in requiring the physician to make a physical examination of a patient before prescribing habit forming drugs. Changes have also been made in that paragraph of the law which provides for the legal commitment of habitual users of narcotic drugs. The sale or gift of narcotic

drugs to children under sixteen years of age is made a penal offense. Under the agreement reached at the conference this measure is substituted for the bill introduced by Senator Whitney.

American Relief Fund for the Belgian Profession.—

During the week ending March 27, 1915, the following contributions to this fund were received: Dr. H. N. Torrey, Detroit, Mich., \$10; Faulkner County Medical Society, Conway, Ark., \$25; Newburyport Medical Club, Newburyport, Mass., \$20; Lieutenant Colonel F. P. Reynolds, M. C. U. S. A., Honolulu, H. T., \$25; Dr. Waldo Richardson, Seattle, Wash., \$5; Mrs. O. W. Johnson, Racine, Wis., \$5; Dr. Joseph Brettauer, New York, \$25; Dr. Lewis Gregory Cole, New York, \$25; Dr. J. N. Hall, Denver, Colo., \$5; Dr. J. B. Rogers, Independence, Iowa, \$5; Medical Society of the County of Westchester, White Plains, N. Y., \$25; Dr. Alex. Marcy, Jr., Riverton, N. J., \$10; Dr. S. R. Woodruff, Bayonne, N. J., \$5; Dr. G. C. McMaster, Pittsburgh, Pa., \$5; Dr. Charles G. Mixer, Boston, Mass., \$10; Dr. S. G. Laws, Spartanburg, S. C., \$5; American Surgeons Clinical Tour of 1914, Galesburg, Ill., \$150.75; Colorado Chapter of A. M. P. O. Medical Fraternity, Denver, Colo., \$50; Boston Society of Psychiatry and Neurology, Boston, Mass., \$100; Routt County Medical Society, Steamboat Springs, Colo., \$10; Dr. Bertram M. Bernheim, Baltimore, Md., \$10. Receipts for week ending March 27th, \$530.75. Previously reported receipts, \$5,221.50. Total receipts, \$5,752.25.

The Seventh Pan American Medical Congress.—The seventh Pan American Medical Congress will be held in San Francisco from June 17th to 21st in the International Exposition grounds. Representatives are expected from twenty-four American countries, many of whom will be sent as official representatives by the Latin American governments in response to a formal invitation issued by the President of the United States in conformity with a joint resolution of Congress. An extensive program is being prepared, covering the entire field of medicine. Clinics are being arranged in a number of cities between New York and San Francisco with a view to showing the foreign visitors what is being done in America. A registration fee of \$5 will be charged, which can be sent to the treasurer of the Congress, Dr. H. P. Newman, Timpken Building, San Diego, Cal. The railroad fare will be from \$95 to \$100 for the round trip to New York. Doctors who contemplate attending should correspond with the chairman of the transportation committee, Dr. H. L. E. Johnson, Jefferson Place, Washington, D. C., who is in charge of the transportation. A meeting of the American committee was held in Washington recently, where the general plans for the congress were discussed. Further particulars regarding these plans may be obtained by addressing the secretary general of the congress, Dr. Ramon Guiteras, 80 Madison Avenue, New York.

Lectures and Clinics on Cancer at Cornell Medical College.—

Announcement is made of a course of instruction on cancer for senior students and graduates in medicine, consisting of eighteen lectures, to be given at Cornell University Medical College, on Tuesdays and Thursdays, March 30 to May 27, 1915. The alumni of the college are especially invited to attend these lectures. The course is elective to senior students. Coincident with the lectures there will be a series of clinics in two sections, at the General Memorial Hospital, 106th Street and Central Park West, on Mondays and Wednesdays, from nine to twelve o'clock, demonstrating the various methods of diagnosis and treatment now in practice. The lectures will be illustrated as far as possible with specimens, charts, and lantern slides. The first lecture was given by Dr. Richard Weil on Tuesday, March 30th, on the subject of cancer statistics, which was a discussion of the prevalence of the disease and the evidence respecting its increase within recent years. The second lecture was given on April 1st by Dr. Stanley Benedict on Metabolism in Cancer. Succeeding lectures will be given by Dr. James Ewing, Dr. Lewis Gregory Cole, Dr. Arthur F. Holding, Dr. William B. Coley, Dr. Charles L. Gibson, Dr. Edward L. Keyes, Jr., Dr. H. C. Bailey, Dr. Burton J. Lee, Dr. John A. Hartwell, Dr. H. H. Janeway, Dr. S. P. Beebe, and Dr. A. F. Coca. The clinics will be conducted by Doctor Weil, Doctor Janeway, Doctor Holding, Doctor Coley, Dr. William A. Downes, Dr. George H. Mallett, and Doctor Beebe.

HEMADENOLOGY:* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M.D., LL.D.,
Philadelphia.

(Fourth Communication.)

THE THYMUS (Continued).

In our preceding article (NEW YORK MEDICAL JOURNAL, March 20, 1915), the thymus was described as being the source of specific lymphocytes which supplied the tissues, during the process of growth, with the excess of nucleins required in this process. In tracing the mode of action of these nucleins in the tissues, it was suggested that in precocious senility, and specifically in that form known as "progeria," in which a child attains senility within a few years, the ageing process was due primarily to deficient activity of the thymus. This was suggested by the symptomatology of cases described, particularly that of the advanced case reported by Gilford in which a *post mortem* examination had been performed, which confirmed from my viewpoint, what the symptoms had indicated.

The salient features of the autopsy were a persistent and enlarged thymus, the two lobes of which weighed jointly 48.3 grams, while a normal thymus, when it has reached its largest dimensions, weighs only twenty-six grams. Although the report states that "the trachea was slightly flattened, but was far from being occluded," my belief is that death occurred mainly owing to pressure of the gland upon the trachea, i. e., as a result of asphyxia. Indeed, we cannot take the *post mortem* condition of the thymus as a guide in this connection owing to the rapid variations in size that it undergoes under the influence of various causes. Inanition, for example, reduces its size to a remarkable degree, and doubtless the agonal relaxation of all vessels which causes the accumulation of blood in the splanchnic area likewise reduces the organ by causing ischemia of its whole parenchyma. To the asphyxia must be added, as a lethal factor, the fact that the mitral valves were atheromatous, while the aortic valves were studded with calcareous excrescences, the coronaries being also blocked. It is evident that these lesions, beside corresponding ones in the rest of the vascular system, caused the heart to fail promptly when sufficient carbon dioxide had accumulated in the blood. But the cardinal feature connected with the thymus in the present case, is that while the microscopical examination, owing to undue exposure, failed to reveal details of structure, it did show "*a considerable increase in the amount of its fibrous tissue*," a condition which explains the signs of deficient activity of the gland enumerated in the preceding article.

On the whole, all the facts recited lead me to believe that the thymus plays a leading part in progeria, and probably in the less pronounced forms of precocious senility frequently encountered in practice.

*Hemadenology, from the Greek: αἷμα, blood, ἀδὴν, gland, λόγος, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

Might the other ductless glands be involved in the process? Arthur Keith (18), after a careful study of the skeleton in a case of progeria reported by Hutchinson, suggested that the disease might be attributed to some perversion of pituitary activity; but as Gilford (19) aptly remarks, "to suggest that five such striking or even hideous diseases as gigantism, progeria, acromegaly, Fröhlich's combination, and ateleiosis [dwarfism of the Tom Thumb variety] are all of pituitary origin, is to throw a heavy burden of responsibility upon one very small organ." Indeed, in Gilford's own case, the second described in the foregoing article, neither the pituitary nor the pineal was abnormal. This coincides with what results of x ray examinations had given. The thyroid gland was also found "of relatively normal size and appearance," while "microscopic examination revealed nothing amiss." Moreover, none of the typical stigmata referable to these various ductless glands can be discerned in any of the reported cases that I have been able to study.

As to the adrenals, Variot and Pironneau (20) described a case in a girl of fifteen years, and hold that the cause of the disorder should be sought in a disorder of the adrenals. Rand (16), who refers to this case, states that it was practically identical with others he describes. Having not been able to obtain the paper of Variot and Pironneau, I cannot comment on their views, yet if the other cases to which their own is compared are taken as standard, none of the stigmata peculiar to adrenal disturbances is discernible. This does not mean that these organs are not influenced by age or even that their integrity may not be a prominent feature of longevity; indeed, the annexed figure (Fig. 1) demonstrates that such may be the case. It shows clearly the influence of age on the vessels of the adrenals. In the preparation of the specimens, Landau, of Petrograd (21), employed Rauber's method to inject the vessels with a hardening substance, and then used a corrosion method to destroy the surrounding parenchyma. The vascular tree of the organ is clearly shown to lose its finer branches as old age creeps on. A kinship with the thymic fibrosis was recorded by Hultgren and Anderssen (22), who found fibrous tissue between the cortex and medulla of the adrenals in very old animals, and also by Minervini (23) who observed a similar condition in the medulla of aged human subjects. Still, this does not indicate that the *primary* fibrous degeneration of precocious senility should be sought in the adrenals, for in the case in which fibrosis of the thymus was found histologically by Gilford, the adrenals, he states, "were shrivelled, but were otherwise of healthy appearance."

All the main ductless glands other than the thymus being thus excluded, and the correspondence between the leading symptoms of progeria and the

phenomena evoked by thymectomy and other conditions capable of inhibiting thymic activity, being marked, it seems to me permissible to conclude that *progeria, or precocious senility, is due primarily to deficient activity of the thymus.*

What is the nature of the ageing process?

Ageing is primarily due, in the light of modern

sclerosis developing; in others, the kidneys become the seat of some form of chronic nephritis which in turn incites other disorders; in still others, the detoxicatory action of the liver becomes impaired, etc. Slowing of the processes of oxidation and self defense against intoxication are therefore the main underlying causes of morbid or precocious senility. What is the role of the thymus in these processes?

The thymus is about the only important ductless gland that has not been associated with senility. A connection between old age and myxedema was first discerned by Sir Victor Horsley, in 1890, and subsequently defended by Vermehren (24), Ewald (25), Lorand (26), and others. The last named writer then pointed to the testicles, ovaries, adrenals, and pituitary body, as predominating factors in the ageing process, beside the thyroid, ascribing to slowing of the processes of oxidation the secondary or direct pathogenic causes of senility. Pending ample evidence to be submitted later, I shall merely quote Lorand's statement that: "This is further sustained by the labors of Sajous (27), who was the first to describe the mechanism through which these organs govern oxidation and metabolism and to explain how they produce the disorders just enumerated." Metchnikoff, while denying the relationship between myxedema and old age urged by Horsley, emphasized the importance of the ductless glands in the ageing process, owing to the destructive action of their secretions upon the toxic agents which promote this process. Considerable evidence is available, however, showing that the thyroid must also be regarded as endowed with such a function. Not only has a detoxicatory action long been attributed to this organ, but this action has received its explanation in recent years.

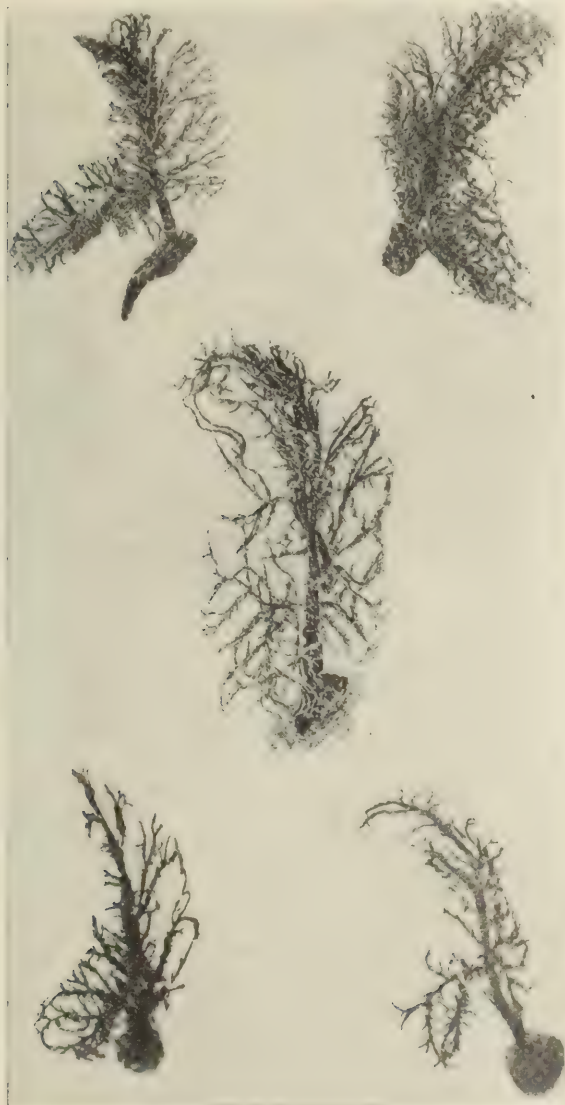


FIG. 1.—The adrenal vessels in the young and old. 1, Injected adrenal vessels of a man 22 years old; 2, of a woman 30 years old; 3, of a pregnant woman 22 years old; 4, of a man 80 years old; 5, of a woman 32 years old (Landau).

work, experimental and clinical, to slowing of the processes of oxidation. This entails autointoxication, due in turn to the retention in the tissues, including the blood, of toxic matter. In normal senescence or ageing, this intoxication is counterbalanced by the defensive resources of the body, the poisons being broken down as formed and converted into readily eliminated end-products. When the ageing process progresses with undue rapidity, tissue oxidation is sufficiently slowed to impair inordinately the activity of this defensive process, and some structure or other becomes the seat of degenerative lesions. In a large proportion of cases, the arterial system is first to suffer, atheroma and arterio-

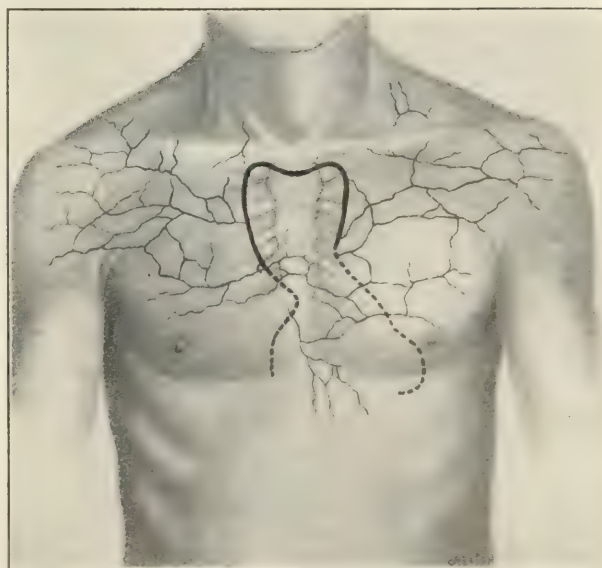


FIG. 2.—Venous engorgement due to enlargement of the thoracic and area of percussion dullness over latter (William Browning).

Léopold-Lévi and H. de Rothschild, of Paris (28), write in this connection: "Sajous has attributed, among the functions of the thyroid body, a role to the latter which he assimilates to that of opsonins and to autointoxines. More recently, Miss Fassin, M. Stepanoff, and M. Marbé have confirmed on

their side the influence of the thyroid on the blood's asset in alexins and opsonins."

As each of the organs referred to above is considered individually in the present series, the evidence attesting to the strength of the deductions just submitted will be adduced. For the time being, therefore, it may be accepted as a working proposition that the thyroid, adrenals, pituitary, and sexual glands, have all been shown to have a controlling influence over oxidation and metabolism and also over the defensive processes of the body. We shall now see that the thymus, beside supplying nucleins required during growth and development, *takes part also, through these nucleins, in the oxidation and autoprotective processes of the body.*

General biology affords light on this subject, which explains why removal of the thymus should so materially impair vital functions. Nuclein, rich in phosphorus, we have seen, is the component of the nucleus of tissue cells in virtue of which they grow, develop, and reproduce themselves. Verworn (29), referring to the photogenic cells of lightning bugs, which cells may be shown by the perosmic acid test, to "absorb oxygen actively," quotes Pflüger as appropriately saying concerning this process: "Here in the wonderful spectacle of animal phosphorescence, nature has given us an example that shows where the taper burns that we call life. . . . It is certainly no rare exception, but only the special expression of the general law, that *all* cells are burning continually, although with our corporeal eyes we do not see the light." Both nucleus and protoplasm taking part in the metabolism of the whole cell and being indispensable to its continued life, it follows that the phosphorus-laden nuclein known to be supplied by the nucleus to the protoplasm is that which "absorbs oxygen actively."

Experimental physiology sustains this deduction: Friedleben (30) found that thymectomy reduced the intake of carbon dioxide, while Thierloix and Bernard (31) noted that it caused hypothermia. Buchner, Hankin, and others have noted, on the other hand, that the administration of nuclein caused a rise of temperature. Finally, we have the testimony of Jacques Loeb (32), based on his extensive experiments in general biology, that "the nucleus is the organ of oxidation of living matter" and (a feature I shall recall presently when the process of senility is described) "that fragments of cells without a nucleus are not able to regenerate because their oxidative activity has fallen to too low a point."

The participation of nuclein in the autodefensive functions of the body has also been urged for many years. It is known to produce marked leucocytosis and thus to favor phagocytosis. Various preparations containing nucleic acid have, moreover, been found useful therapeutically in many infections, especially erysipelas, pneumonia, tuberculosis, and typhoid fever. This property, first shown by Horbaczewski, has been confirmed by many investigators, including Kossel, Vaughan, Dudgeon, Ross, Chantemesse, Loewy, and Richter. Bearing more directly upon the subject in point, possibly, is the influence of nuclein on toxalbumins and other organic poisons, so important, as we have seen, in the

causation of senility. These poisons are rendered inert, according to Parlavacchio, Vaughan, Tichomiroff, Kossel, and others, owing, it is thought, to the affinity of nucleic acid for albumins. While nucleoproteids take part in the immunizing process *indirectly* by enhancing oxidation, from my viewpoint, cooperating with other substances which will be considered later in these articles, those of thymic origin do not seem, judging from the data available, to influence *directly* to any material degree this autodefensive function.

Before reaching a conclusion as to the manner in which the thymus influences the ageing process, however, it is important to recall that, in Hutchinson's and Gilford's cases at least, normal development had occurred up to a certain time when, possibly as the outcome of some lesion in the thymus, this organ began to undergo fibrosis. Indeed, in Gilford's case the patient showed evidences of development in certain directions; the brain, the intelligence being approximately normal, the relatively large size of the liver and generative organs, the relatively large ends of some of the long bones and cartilages, all existing side by side with distinct signs of delayed development and senile decay. The role of thymic deficiency in the genesis of the senile process can, therefore, be considered as an arrest of function in the course of normal growth. On the other hand, the same cases presented all the evident signs of senility. Thus, in Gilford's words: "The general expression and attitude of the body, manner of walking, baldness, gray hair [though black in Rand's case] atrophy and harshness of the skin, absence of fat, muscular emaciation," and the arteriosclerosis so often encountered in old age, were all linked with the prominent stigmata of thymic deficiency.

With all the foregoing data at our disposal, it now seems possible to submit an explanation of the pathogenesis of precocious senility, including progeria, its earliest form, in its relations to the thymus.

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(To be continued.)

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

January 4, 1915.

Technic of Protective Inoculation against Vari-cella, by Carl A. Kling.—The material for inoculation was derived from an active case of the disease in a child who was free from syphilis and tuberculosis and who showed no signs of any other infection. When the eruption is in its early stages vesicles are chosen which contain perfectly clear serum and which have not too much areola. Since the vesicles come out in crops, one patient will afford material for a few days. The virulence of the virus is probably greatest on the first day of the eruption, giving the greatest protection. The serum should be obtained under perfect aseptic precautions. The inoculation should be made with an ordinary vaccine lancet which is not too sharp; it is inserted into a vesicle of the patient and the clear lymph allowed to moisten its tip. The skin at the site of inoculation should be made tense, the lancet inserted into it several times just far enough to draw blood. After about three stabs the lancet should again be moistened with the serum from the vesicle. A total of three to six punctures should be made to insure success. One hundred and thirty-five patients have thus been successfully inoculated during an epidemic and only twenty-three per cent. of failures to produce immunity were recorded. After the inoculation a light bandage is placed over the site for twenty-four hours. When local inflammation, the sign of success, appears, the dressing should be reapplied to prevent rupture of the delicate vesicle. In ten of the 135 inoculated children a few vesicles appeared upon the upper portions of the body as well as at the inoculation site, and in three children a general varicella was produced.

Noguchi's Luetin Test in Late Syphilis of the Central Nervous System, by V. Kafka.—In a series of 139 patients, latent general syphilis gave only sixty-two per cent. of positive reactions, congenital seventy-two per cent., general paralysis fifty-two per cent., cerebral syphilis ninety per cent. and tabes one hundred per cent. Single plus positive reactions were most numerous among the cases of congenital syphilis; no triple plus reactions were noted in this group. General paralysis gave a very small proportion of triple plus reactions while, on the other hand, tabes and cerebral syphilis gave a large proportion. The degree of the reaction is therefore some index of the presence of one or the other of these two conditions. Theluetin reaction is almost never positive in the primary or secondary stages of syphilis; it is almost always positive in the tertiary stage. It disappears only when the syphilitic process becomes stationary. In general paralysis, the tissues of the body seem to be no longer capable of forming protective substances either in sufficient amounts or of sufficient potency to be of value to the host.

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

December 24, 1914.

Treatment of Sweating Feet, by H. Althoff.—The feet should first be thoroughly washed with

warm water and soap, rinsed, and dried. Then the soles and the skin between the toes are painted with equal parts of thirty-five per cent. formaldehyde and distilled water. The solution should dry before the foot is covered. In general this treatment should be repeated three days in succession. The effect is prompt and lasts for four to six weeks, when the application should be repeated. Sweating is often permanently cured.

Sunlight and Free Air in the Treatment of Purulent Wounds, by Backer.—The author agrees with others who have exposed infected wounds to sunlight and air. Wounds, whatever the injecting organism, tend to heal promptly; the purulent discharge ceases, becomes apparently sterile, with ultimate production of a soft cicatrix. The wound should be exposed to the direct rays of the sun and should not be covered by anything more than a single layer of gauze. Exposure to the free air is beneficial; the effect is somewhat slower. Backer believes that the action of sunlight and air in these cases is complex, depending mainly upon the effects of actinic rays, heat, oxygen, and drying. In addition, beneficial effect upon the health, from living largely out of doors, is an important means of resistance and healing.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

February 23, 1915.

Thigan, by Edmund Saalfeld.—Benefit had been obtained with this preparation in the treatment of gonorrhea. It is a solution of thigenol and silver and of such strength that one c. c. contains one mg. of silver. When it was first used, sodium chloride was added, but the results obtained without the addition of sodium chloride are the same. Ten c. c. of thigan are injected into the anterior urethra and allowed to remain for fifteen minutes. The injection is repeated from three to six times daily, depending upon the acuteness of the infection. It should be continued for a period of one to two weeks after the smears are negative. Its advantages are that it is not irritating; that the secretion is rapidly diminished; that the subjective symptoms are improved, and that gonococci are made to disappear. As it is not irritating, it can be used in the catarrhal stage of gonorrhea.

Novocaine Anesthesia in Normal Labor, by Karl Bollag.—These injections are made into the pudendal nerve and the preparation used is a two per cent. novocaine adrenaline solution. A five c. c. Record syringe with a six cm. needle is employed. The technic is as follows: The patient is placed on her back with the thighs flexed on the abdomen. The tuber ischii is palpated and the needle is inserted posteriorly, between it and the perineum, in the direction of the lesser sacrosclatic foramen. While the needle is slowly being withdrawn, two c. c. are injected. When the needle lies directly under the skin, 0.5 c. c. is injected. The remaining 2.5 c. c. are used in a similar manner on the opposite side. In fat subjects double the quantity is employed, so that the nerve is sure to be anesthetized. The time for the injection should be so arranged that it acts during the last part of the second stage when the pain is caused by the stretching due to the progress of the presenting head. This is of

greatest importance in primiparæ. Within five to seven minutes after injection the parts are rendered anesthetic.

A New Principle in Serum Therapy in Infectious Diseases, by Harry Koenigsfeld.—An ideal serum for passive immunization is the patient's own serum after the antibodies it contains are put into a suitably active form. This principle can be carried out in any infectious disease. Typhoid patients have been treated in this manner. From fifty to sixty c. c. of blood are removed by venesection and allowed to run into a sterile flask which is immediately put on ice. After the clot forms the serum is poured off and five per cent. phenol is added drop by drop to make a ten per cent. solution. The injections are made subcutaneously on the outer side of the thigh after preliminary cleaning with ether. It is important to make the injections at a time when a great number of antibodies are present, which is determined by the obtaining of a Widal reaction in high dilution; 2.5 to four c. c. of serum are injected daily until the fever disappears. A series of eighteen cases were treated in this manner, and fourteen showed a rapid cure. These cases were for the most part severe infections. Cases that were seen early ran their course in three weeks. The treatment also caused a diminution of the period of convalescence.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

January 26, 1915.

Use of Fatty Substances to Prevent Frostbite, by André Piédallu.—Copious greasing of the feet, socks, and lower portions of the underdrawers was found by Piédallu to have a marked influence in reducing the number of cases of frostbite of the feet of soldiers occupying flooded trenches. The cases still occurring were, moreover, less severe than before. The amount of grease recommended in each case for proper application of the method is 400 grams.

Report on a Series of Cases of Tetanus, by P. R. Joly.—The prognostic value of the duration of the period of incubation was clearly seen. In all cases in which this exceeded ten days, recovery followed. Joly recognizes five forms of tetanus, the fulminating (hyperacute), acute, subacute, mild or local, and the chronic or latent, in which the symptoms appear only when a surgical operation is undertaken. Stress is laid on the cardiorenal apparatus as a decisive factor in the termination of the disease. A pulse rate low in proportion to the temperature and a pronounced diminution in the urinary output are bad prognostic signs; likewise, profuse sweating, especially of the face and head, at the onset of and during the convulsive paroxysms. As regards treatment, only cases in which both antitetanic serum and phenol were administered recovered—five out of six thus treated. Serum was injected subcutaneously and intravenously; phenol was administered in the cellular tissues in doses of ten to sixty c. c. of a three per cent. glycerinated solution daily. Special care as to cardiorenal measures is enjoined, drugs such as digitalis, strophanthus, camphorated oil, hexamethylenamine, squill, lactose, diuretic infusions, and Vichy water being recommended. To make up for respiratory inade-

quacy oxygen inhalations were given every hour or even every quarter hour. Venesection, in one case, seemed to diminish the frequency and intensity of the convulsive attacks. Combined use of morphine, camphorated oil, ether, and oxygen, is recommended in allaying the convulsions.

February 2, 1915.

Rapid Functional Recovery after Nerve Suture, by Salva Mercadé.—Report of the case of a soldier with fracture of the ulna and complete motor and sensory paralysis of the median nerve; an operation to restore the continuity of the nerve was performed two months after admission. The nerve was found imbedded in fibrous tissue, with neuromatous enlargements above and below. Section of the nerve was effected in two places to secure normal tissue for suture—three cm. of the nerve trunk being sacrificed—and the ends were united with two sutures passed through the sheath alone, anteriorly and posteriorly. On the fourth day, to Mercadé's astonishment, power in the flexor muscles had returned, though sensation was still absent. Motor power thereafter progressively increased and sensation soon returned in a portion of the median distribution.

PRESSE MÉDICALE.

February 4, 1915.

Treatment of Severe Suppurative Arthritis of the Knee, by Chaput.—In gunshot wounds of the knee, infection of the knee after careful and complete arthrotomy is nearly always caused by injuries to the neighboring bones, which become infected from the joint through apparently insignificant fissures and later reinfect the joint. The surgeon must, therefore, use a large U incision in order to be able to examine the condyles of the femur and the tibia. Suppurative arthritis cannot be cured until the fissures in the bones have been done away with. Any fissure discovered, however inconspicuous, should be opened up with a chisel. Where both femoral condyles are found fissured, resection of the knee is recommended. The line of resection of the femur, where the condyles are alone involved, should be at the junction of the epiphysis and diaphysis, not through the epiphysis itself. After operation the wound should be left open, a posterointernal opening made for drainage (a sheet of rubber being inserted), and extension of the limb instituted by means of a padded boot to which a one or two kilogram weight is attached. Later a fenestrated plaster cast should be used. Where a single condyle of the femur or tibia is alone fissured, that condyle should alone be resected.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

February 28, 1915.

Partial Laryngectomy, by F. Bertran y Castillo.—In reporting two instances of this operation, several important features are considered. Secondary hemorrhage is a frequent complication and occurred in both cases. Local anesthesia in such operations preserves the consciousness of the patient, and consequently, at the request of the operator, the vocal cords can be approximated, and, by coughing, blood may be expelled. There is also an absence of the mucus secreted during general anesthesia, and there is apparently less tendency to the

severe form of secondary hemorrhage. Preliminary tracheotomy should always be done, not only because it prevents asphyxiation at the time of operation, but because it also accustoms the lungs to the inhalation of cold unfiltered air, and this, in turn, seems to aid in the prevention of bronchopneumonia from inspired blood.

March 7, 1915.

Death after Gray Oil Injections, by J. S. Covisa.—The patient was a woman of thirty-nine years who had been given six injections of the gray mercurial oil for syphilis. On coming under observation there were severe mercurial lesions of the mouth and pharynx, swelling of the gums without the usual ulceration, also numerous small ulcers on the mucous membrane of the cheeks. There was intense ulceration behind the molar teeth involving the base of the tongue and the entire soft palate. There were no intestinal symptoms, albuminuria, nor urinary casts. Treatment was instituted with irrigations of potassium permanganate, and peroxide of hydrogen, and also cauterization of the ulcers with a twenty per cent. chromic acid solution. Under this treatment the ulcerative condition cleared up remarkably except on the tongue, which became so swollen as to fill the entire mouth, and make the ingestion even of liquids almost impossible. The gingivitis healed up; no bone lesion was produced as is almost always the case in mercurial stomatitis. The tongue however continued to swell so as to protrude from the mouth and an accompanying trismus made it very difficult to prevent the teeth from severing the tongue. The general condition was surprisingly good all along. After some days of local treatment, the glossitis abated to such an extent as to allow the tongue to recede into the mouth and the stomatitis almost disappeared. However dyspnea occurred from ulceration of the epiglottis, progressing to a fatal termination. Autopsy showed that the cause of death was mechanical asphyxiation from edema and ulceration of the glottis. Absolutely nothing pathological was found in the other organs. This is an extremely rare cause of death in mercurialism. The common causes of death are hemorrhage, general sepsis and bronchopneumonia, when stomatitic symptoms prevail. On the other hand when the intoxication is acute, death is caused by renal, hepatic, and intestinal lesions.

BRITISH MEDICAL JOURNAL.

February 27, 1915.

Treatment of Malignant Disease of the Skin, by J. H. Sequeira.—Carcinoma of the skin may be divided into four types: Squamous cell or epithelioma; the basal and glandular cell type, or most forms of rodent ulcer; nevus carcinoma; and Paget's disease. In the treatment it is essential to remember that the first form tends to early invasion of the lymphatic glands. The contrary is true of the second form, but the curability of this type depends largely on its treatment before it has directly involved the underlying bone or cartilage. Visceral metastases are very likely to develop early in the third form of the disease, particularly when springing from pigmented nevus. Paget's disease often appears to be purely superficial, but it has a strong tendency to involve the breast in an early stage, a

duct cancer developing. The treatment of malignant disease of the skin is of several types. Complete excision is the method of choice in epithelioma, with thorough removal of the adjacent glands. Radiotherapy, with or without previous excision, gives very good results in cases of rodent ulcer, but it is often necessary to curette the indurated edges when this treatment is used. The essential feature of this form of treatment is that if it is going to be effective in a given case the improvement will be manifest early. If early improvement is not evident the method should be abandoned and another adopted. Radium probably gives even better results in rodent ulcer than do the x rays. Diathermia has given good results in a few cases of cutaneous malignant disease, but the method is yet in the experimental stage and nothing definite can be said of its scope or value. Carbon dioxide snow has also occasionally afforded promising results, but many cases have to be treated subsequently by one of the other methods. In Paget's disease local measures and radiotherapy should not be resorted to, but early and radical removal of the breast should be practised. In radiotherapy scrupulous cleanliness of the parts should be maintained, local antiseptics should be applied to prevent infection, and the dose should be carefully adjusted to destroy the tissues and to avoid stimulating them to increased growth.

Treatment of Epidemic Cerebrospinal Meningitis, by George C. Low.—The use of serum was found to be disappointing and was soon abandoned in favor of soamin. It was found that intramuscular administration of five grains of this arsenical on each of the first two days of treatment, followed by a dose of three grains on the fourth day, and perhaps one or two additional doses of this size, gave seven recoveries in eight consecutive cases. Such small doses into the muscles do not have any tendency to produce the dangerous side actions of this drug such as blindness and seem to be perfectly safe. The meningococci in the spinal fluid were found to be reduced in number or to have completely disappeared after this form of treatment. The work here reported by Low is mainly that of Gilks, and of Shircore and Ross in Africa.

March 6, 1915.

Treatment of Pernicious Anemia with Salvarsan and Neosalvarsan, by Byron Bramwell.—Twenty-one cases are reported. Intramuscular injection of small doses of salvarsan or neosalvarsan at suitable intervals marks improvement which is manifest in two ways. First, benefit is more prompt. Secondly, duration of the improvement is generally longer than when arsenic is given by the mouth. There also seems to be a larger proportion of apparent cures; of these patients, Bramwell says, a number will subsequently relapse and die. The injections of salvarsan or neosalvarsan are associated with some local disturbance; this is usually slight and there is some fever. Morphine is occasionally necessary when the pain is very troublesome. The impression is that salvarsan is more effective than neosalvarsan; the latter produces less local reaction. These preparations have little tendency to give rise to the symptoms of arsenic poisoning, especially peripheral neuritis.

Benzol Therapy in Leucemia and Lymphosarcoma, by T. Gillman Moorhead.—Benzol first increases the number of leucocytes, soon however, reducing their number. The reduction is at first slow but becomes progressively more rapid, with marked fluctuations and continues even after benzol is not given. With the reduction in the number of white cells the differential count in both forms of leucemia approaches normal; there is almost always some evidence of the disease in the blood picture. From three to five grams of benzol may be safely given daily and it is best administered in gelatin capsules with an equal amount of olive oil. In splenomyelogenous leucemia the drug has a variable effect on the size of the spleen, in some cases it is reduced nearly to normal, in others it is unchanged. At the present time we do not know what the final result of this treatment in leucemia is going to be, and there is still no proof that the disease is cured permanently. Four cases are recorded, one of splenomyelogenous and one of nodular lymphatic leucemia, and one each of lymphosarcoma and osteosarcoma. The first three cases were greatly benefited, the third being apparently cured by the treatment combined with the use of x rays. The last was unaffected after four weeks of administration of the drug.

LANCET.

February 27, 1915.

Treatment of Wounds in War, by W. Watson Cheyne.—Stimulated by the large number of severely infected wounds encountered in the soldiers, Cheyne and his associates have sought to determine some means of accomplishing adequate disinfection in the early stage of the wounds. Ordinary methods of using antiseptics and germicides were ineffective in a large proportion of cases, either from the choice of an unsuitable agent or insufficient application of an effective one. A large number of antiseptic and germicidal substances were therefore studied, as well as several menstrua with which they could be incorporated so that they might be introduced into wounds and remain there for several hours. The most suitable medium was found to be one composed of lanolin and white wax in the proportion of six parts of the former to one of the latter. The capacity of the antiseptic to diffuse into the tissues is an important factor; this was tested by determining the diffusibility through agar slabs and blood clots of the substance, in the form of a paste. The irritant effect of the antiseptic was also tested by wearing a measured quantity of it on the skin for definite periods. The most effective antiseptics—that is those which have the greatest power of penetrating in sufficient concentration to kill organisms at a distance, and which are yet not too irritant to the tissues, were found to be phenol and tricresol made into pastes with the lanolin medium and varying in strength from five to thirty per cent. The effectiveness increased proportionately with the increase in strength and the thirty per cent. preparations were not sufficiently irritant to cause serious damage to the tissues. A few other antiseptics were found to be effective, but less so than these two. Among these may be mentioned five per cent. paraform, salicylic acid, oil of cinnamon, cyllin, hycol, lysol, liquor cresolis

compositus, and balsam of Peru. The other substances, including bichloride of mercury, iodine, and double cyanide of mercury and zinc, were almost devoid of any evidence of penetrating power. With phenol or tricresol sufficient amounts penetrated from a quarter to half an inch in three hours, preventing the growth of organisms or killing them completely. In somewhat longer periods the destruction was complete at this distance; the inhibition of their growth and virulence was manifest for a greater distance. Neither of these preparations completely destroyed spores, but both were able to injure them to such an extent as greatly to reduce their virulence and powers of subsequent multiplication. These pastes are recommended to be injected into wounds as soon as possible and left there without disturbance. They have been tried in two cases of badly soiled wounds so far and have given remarkably good results in both.

Colloidal Iodine and Serum Treatment in Tetanus, by Doctor Auregan.—Ten cases of frankly developed tetanus were treated with serum injections and the usual general measures; four patients recovered and six died. The same treatment was employed in fourteen other cases with the addition of colloidal iodine given intramuscularly and used as dressings for wounds; of these patients ten recovered and four died. This gives a proportion of nearly sixty-nine per cent. of recoveries under this combined method, far higher than generally reported. Aside from the use of colloidal iodine, Auregan emphasizes the value of early tracheotomy to avoid death from laryngeal spasm, and of the use of camphor to support the heart.

March 6, 1915.

Treatment of Soil Contaminated Wounds, by Alexander G. R. Foulerton.—In wounds contaminated with soil something leads to anaerobic conditions in the wounded tissues. The action of the ordinary pyogenic organisms is one by which they use up oxygen in the course of their multiplication; trauma to the tissues leads to a diminished and greatly retarded blood supply. Free oxygen at once causes anaerobic bacilli to produce spores; both cease multiplication and lose pathogenicity so long as they remain exposed. This is true of tetanus bacilli and of the various types of organisms producing emphysematous gangrene. Any method, therefore, which will maintain an atmosphere of free oxygen throughout the wounded tissues should greatly reduce the dangers from these organisms and permit the tissues to rid themselves of them. The peroxides of calcium and of barium, and the perborate of sodium were tested to determine their powers of liberating oxygen when in contact with secretions and tissues as well as *in vitro* and the perborate was found to yield by far the greatest amount. The germicidal activity of the nascent oxygen freed by this compound was found to be equal, volume for volume, to that liberated from hydrogen peroxide. Dead organic matter in the wound materially weakened the action by diverting some of the oxygen. Experiments showed that the application of sodium perborate to a wound provided a continuous evolution of oxygen for about twenty-four hours, destroying the organisms or inhibiting their action during this period. The dry powder should be thoroughly insufflated into any

soil contaminated wound as early as possible and repeated at least once a day. When the wound is old and the organisms have begun to multiply in the tissues, insufflation should be preceded by thorough disinfection by pure phenol.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE

February 1, 1915.

Tertiary Yaws, by R. Howard.—Tertiary yaws is an important, destructive and widely spread disease, occurring in patients who have previously suffered from primary yaws. Many of its manifestations are practically indistinguishable from tertiary syphilis, and numerous cases are probably diagnosed as syphilis. The onset may occur within a year of the healing of the yaws rash, but oftener there is an interval of apparent cure of from five to ten years, with persistence, however, of the chronic condition of the soles of the feet known as foot yaws. The nodes of tertiary yaws are often present on the ulna near the elbow and wrist, and likewise on the tibia. In children Howard observed overgrowth or stunting of the radius or ulna, with consequent dislocation of the hand. Ulceration was noted to be either superficial and serpiginous, or deeper, with subcutaneous gummata. The process was observed to advance steadily in most untreated cases, causing marked deformities, contractions and dislocations, or strangulation of the blood supply, resulting in edema. Generally the effect of ordinary antiseptic treatment of the ulcers and of internal administration of potassium iodide was very successful, though some cases relapsed as soon as the iodide was omitted and in about one per cent. of instances, the iodide seemed powerless. Foot yaws was found easily curable by soaking the feet till soft and cutting away all the thickened skin overhanging the ulcer with sharp scissors; the ulcer generally healed a few days later. Howard holds that the two conditions known as gangosa or rhinopharyngitis mutilans and melung (a form of leucoderma of the palms and soles) stand in a close etiological relationship to tertiary yaws.

February 15, 1915.

Triple Typhoid and Paratyphoid Infections, by Aldo Castellani.—The unique case is reported of a man aged fifty years who manifested symptoms of typhoid fever and was found to be suffering from combined infection with *Bacillus typhosus*, *Bacillus paratyphosus* A, and *Bacillus paratyphosus* B. The three organisms were isolated from the stools on one occasion; the blood agglutinated them during the whole course of the disease, and absorption tests showed the agglutinins for each germ to be specific. This case and previously reported cases of double infection serve, in Castellani's opinion, to emphasize the need of using for prophylactic purposes a combined typhoid, paratyphoid A, and paratyphoid B vaccine instead of the simple typhoid vaccine generally employed.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

February, 1915.

Gastric and Duodenal Ulcers, by Max Einhorn.—While treatment of peptic ulcers is generally strictly medical, their sequelæ may require surgical intervention, and this is indicated by perforation, recurrent profuse hemorrhages, by hematemesis or

melenæ or both, which endanger the life of the patient. Frequent small hemorrhages, not influenced by medical treatment, lead to an appreciable degree of anemia; other signs are hypersecretion, intercurrent isochymia, severe pains, stricture of the pylorus, and tumors.

Bone Wedging; Eliminating Foreign Materials in Open Operations on Fractures, by W. E. Gallie.—The ends of the fragments, in a fracture of one of the long bones, are exposed by a free incision, the fracture is reduced, and while an assistant holds the bone in correct position, the surgeon cuts with a motor saw a wedge from the cortex of the two fragments. Both pieces are cut out; the larger is driven into the space left by the removal of the narrower so as to wedge it solidly into both fragments of the bone and dovetail the fracture together. The smaller piece is then dropped behind the other to assist in holding it in place.

Early Diagnosis of Tuberculosis, by D. Townsend.—Repeated sputum examinations should be routine in all suspected cases. Absence of bacilli does not exclude tuberculosis and their presence usually indicates a more or less advanced condition of the disease. Tuberculin may be employed in doubtful cases. Von Pirquet's test is of more value in children than in adults; the conjunctival test is too dangerous to be employed as a routine; the subcutaneous is preferable as a rule. The dose for the first injection is 0.2 c. c. It may give rise to a reaction at the point of injection; a febrile reaction, the temperature rising 1° F.; a general reaction with headache, malaise, chill, etc.; a reaction at the seat of disease showing increased activity. The febrile and general are most often met with, and the focal reaction is the most trustworthy. Tuberculin is contraindicated when the patient has a temperature of 99.2° F. oral, or 99.8° F. rectal, or a recent hemorrhage from the mouth, when he is suffering from heart or kidney disease, epilepsy, severe hysteria or neurasthenia, miliary or active tuberculosis, diabetes, and arteriosclerosis, in convalescents and persons weakened by severe disease.

BOSTON MEDICAL AND SURGICAL JOURNAL.

March 18, 1915.

Value of the Colloidal Gold Test (Lange) in Cerebrospinal Fluid Obtained post mortem, by H. C. Solomon.—Cases that are fairly stationary clinically give the same results ante mortem and post mortem with the colloidal gold test. Post mortem spinal fluid from cases of general paresis will usually give the typical paretic reaction, such as is obtained before death. Post mortem spinal fluid from cases of a noninflammatory nature may give the expected negative reaction, but unexpected positive reactions are obtained in certain cases both ante mortem and post mortem. The results of the colloidal gold test may be interpreted similarly for diagnostic purposes whether the cerebrospinal fluid is obtained from the lumbar region before or after death.

Disturbances of the Stomach, by H. F. Hewes.—This paper, which runs through four numbers of the journal, describes the methods of clinical study which are utilized in the investigation of stomach cases, and the value of the findings obtained by the use of these diagnostic methods, and illustrates the

method of procedure, with a general plan for the drawing of conclusions from the clinical findings in individual cases. It is excellent, but practically impossible to summarize.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

March 2, 1915.

Etiology of Cancer in the Light of Recent Cancer Research, by H. R. Gaylord.—Of especial importance is the parasitic theory. There has been much controversy over this theory, but today through discoveries of filterable viruses it is at last justified. The question is whether only a few neoplasms are caused by living organisms or whether living organisms cause many of the malignant growths. The views of those who have been opposed to the parasitic theory have been modified to such a degree that there has been a steady drawing together of opinion as to the cause or causes of the neoplasms. The evidence of chronic irritation as a predisposing factor has been recently revived by the demonstration of nematodes, and ascarides in cancer of the breast in mice and by cases of sarcoma and carcinoma in rats starting from the walls of echinococcus cysts and cysticerci. It is also now known, through animal experimentation, that there is a definite constitutional susceptibility to the disease, and this is both of the so called natural and the acquired type. With the positive knowledge which has been acquired of neoplasms in animals in which the existence of a neoplastic virus has been definitely established, it is no longer possible to believe that there is such a thing as a single cancer parasite; we are face to face with the probability that, if the various types of cancer are to any degree caused by such viruses, there are many of them, each probably having marked specificity for one type of tissue.

The Nervous System during the Primary Stage of Syphilis, by U. J. Wile and J. H. Stokes.—The nervous system may be and probably is frequently involved before there are other evidences of the hematogenous spread of *Treponema pallidum* from the site of the initial sore. Such involvement, however, may be slight so far as clinical symptoms go, and may not be accompanied by changes in the spinal fluid discoverable by present methods. On the other hand, serious involvement may occur early, with very marked changes in the fluid and definite impairment of function. The clinical changes most commonly noted in the preroseolar period are headache, involvement of the second and eighth nerves, and increased reflexes. Of these, the headache is most often associated with demonstrable changes in the spinal fluid. Absence from the spinal fluid of any of the three accepted signs of nervous involvement (a positive Wassermann reaction, increased lymphocytic count, and increased organic solids, as indicated by the Nonne-Apelt and boiling tests for albumin), can be accepted as disproving the presence of syphilis of the brain, meninges, or cord only when a careful examination fails to reveal any symptoms pointing to such involvement.

Treatment of Intestinal Amebiasis, by G. I. Jones.—From an experience covering fifty cases in the Philippines the author is convinced that neither

emetine hydrochloride nor ipecac, used alone, will cure amebic dysentery, relapses soon occurring. He has found, however, that emetine, given hypodermically, will cure most cases when it is accompanied or followed by the use of ipecac by the mouth. The method employed at the department hospital at Manila is thus described: Emetine hydrochloride, 0.008 gram, hypodermically for ten days—twice a day for four days and once a day for six days. Ipecac started about the eighth day, with doses of from 1.5 to two grams given at bedtime, continued for three nights, and then decreased by 0.3 gram each night. The administration of ipecac must be preceded by laudanum in doses of from 0.6 gram to one gram. Every case of amebiasis, after this treatment, should be considered one of ulcerative colitis, and so treated from a dietetic point of view.

Partial Myxedema, by W. M. Barton.—Among the most marked features of the case were gradually increasing difficulties in speech and gait, so that these were noticed by the friends of the patient, who was a woman aged forty-four years. They supposed her to be more or less continuously under the influence of liquor; an imputation on her character which was dispelled by thyroid extract. This case would apparently justify us in adding chronic alcoholism to the list of diseases or morbid processes with which partial myxedema may be confounded.

MEDICAL RECORD.

March 21, 1915.

Some Clinical Features of Exophthalmic Goitre, by C. V. R. Bumsted.—The anatomical changes of the disease may be roughly divided into two classes: 1. Proliferation or active thyroid hyperplasia with hypersecretion; 2, degeneration, possibly with hyposecretion. While the pathogenesis of the disease and of its manifestations has not yet been definitely proved, facts are slowly accumulating which indicate that a thyroid secretion circulating in the blood is the direct cause of all the toxic symptoms. Undoubtedly many cases fail to be recognized and are treated for hysteria, neurasthenia, or insomnia, or else are ignored entirely, merely because one expects to find the complete symptom complex in every case and refuses to appreciate that the transitory and atypical forms are the most common. Exophthalmos is rarely seen early, and the four classical eye signs may never be observed. The thyroid may never show palpable enlargement, and glycosuria may be the only important feature. Neurasthenia, insomnia, rapid loss of weight, excessive sweating, diarrhea, muscular weakness, and disturbances in the general health all call for an investigation of the activity of the thyroid gland, and it will be surprising to find how many cases of Graves's disease are manifesting some one or more of these symptoms. The cardiovascular disturbances, which vary with the intensity of the hyperthyroidism, occur very early, and here the first complaint is of palpitation. The pulse rate is almost always rapid and feeble—often as high as 150 or more; but tachycardia often exists without the patient's being aware of it. Arrhythmia is rare, but patients frequently show paroxysmal dyspnea. The heart is often felt to be pounding, with or without

a systolic thrill or diastolic shock, and murmurs are common, especially at the apex. In the vascular changes the carotids alone may be involved, but the retinal arteries and the abdominal aorta often pulsate so violently as to be very annoying to the patient. In the treatment, the importance of rest cannot be overestimated. Heart stimulants (of which the best is digitalis) should be used only when there are definite indications of cardiac weakness and where the cardiac symptoms predominate. Cases must be individualized, and those with nervous disturbances should always be put on some of the milder sedatives, as bromide. Hydrotherapy is useful, and neutral quinine hydrobromide, in five grain doses three or four times a day, is of decided value in more than half the cases. In patients who do not respond to the quinine therapy, calcium salts, especially the lactate, should be employed. Iodine can be safely used only when the thyroid is undergoing degenerative changes. Favorable results from the use of Beebe's serum have been reported by some observers. Of all the glandular extracts which have been tried, thymus has given the best and most permanent results, and its effect is greatly increased by giving with it small doses of adrenaline. All cases should receive intelligent medical treatment for from three to six months before surgical interference is considered.

Prophylaxis of Puerperal Convulsions, by S. H. Blodgett.—The past two years' hospital work has demonstrated that clinical symptoms, including the amount of albumin in the urine, are of secondary importance to the urea output in foretelling the probability of convulsions, and that careful watching of such output, and making the changes in the diet thus indicated, will enable one to carry safely to term many cases which otherwise would go on to convulsions or necessitate the induction of labor. To be on the safe side, an examination of a sample of twenty-four hour urine should be made every two weeks from the third to the sixth month of pregnancy, and once a week during the last three months. No doubt, a pregnant woman whose physician does not keep careful watch of the urine would be in less danger of convulsions if she were to stop eating meat and fish during the last six months.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

March, 1915.

The Limits of Safety in Blood Pressure Changes, by D. Riesman.—Abnormal blood pressure is not a disease but a symptom; it is an aid to diagnosis. The blood pressure should be taken at frequent intervals in order to note any sudden changes. In operating, high blood pressure has to be considered; if the heart shows no indication of myocarditis, of dilatation or fatty changes, operations are reasonably safe. In pregnancy, the blood pressure is significant; rising pressure is one of the early signs of toxemia.

Chorionepithelioma malignum, by Strasser.—Overgrowth of the syncytial cells is prevented in the normal pregnancy by some substance that checks the activity of the cells. In chorionepithelioma there is a diminution of this substance, the cells thus being allowed to grow; the ovum, through some cause, is

destroyed. There are marked variations in the destructive activity of the syncytial elements. Hydatid mole may be one manifestation, malignant chorionepithelioma with extensive metastases another. Most observers think these tumors arise most commonly as secondary changes following hydatid moles and abortions. The treatment is operative. If, following an hydatid mole, a microscopical examination of the curetted particles shows malignant proliferation, the only course is a total extirpation of the uterus and annexa.

Abdominal Section without the Use of Retractors, by Chandler.—The author rejects the use of metal retractors and only occasionally employs a soft sterile towel. The chief advantages are an avoidance of bruising the tissues and injuring the abdominal muscles. As assistants are not required for holding retractors, there are fewer hands coming in contact with the wound and the danger of infection is decreased.

LONG ISLAND MEDICAL JOURNAL.

March, 1915.

Examination of the Ears of Institutional Children, by Samuel K. Frost.—In one institution for the deaf, eighty-nine children were examined; impacted cerumen was found in the ears of twenty-five, six had chronic purulent otitis, two eczema of the canal, and there were foreign bodies in the ears of two others, that is, forty per cent. of the total number had conditions which could have been relieved by proper treatment. In another institution twenty-eight per cent. of 249 children were similarly affected. The ears of children in two other institutions not for the deaf were examined and the same conditions were found in twenty-seven per cent. of 275 cases in one and forty-three per cent. of 256 cases in the other. It is interesting to note that at least one of the institutions for the deaf had an attending otologist; yet the conditions were neither rectified nor discovered.

OPHTHALMIC RECORD.

March, 1915.

Coffee Amblyopia and Its Relations to General Intoxication from Roasted Coffee Products, by Casey A. Wood.—Wood reports a case of polyneuritis after coffee intoxication, in which amblyopia formed one of the symptoms. Abstinence from coffee, with rest and strychnine, was curative. It is interesting to note that such older writers as Beer and Himly thought the abuse of coffee a probable cause of blindness, and that this view has been upheld by some modern writers. Lewin and Guillery agree that tea drinking produces similar symptoms, perhaps more often than coffee. Color blindness has also been known to result from the excessive drinking of coffee.

PAN-AMERICAN SURGICAL AND MEDICAL JOURNAL.

February, 1915.

Appendicitis and Its Relation to the Female Pelvis, by C. E. Cantrell.—Appendicitis in the female is less likely to lead to general peritonitis than in the male on account of the more efficient care taken of the products of inflammation by the pelvic peritoneum in the female. But an equally

important fact is overlooked to a very great extent: The occurrence of appendicitis, particularly of a chronic and recurrent nature, is very prone to lead to more or less severe pelvic inflammation with a varying amount of damage to the female pelvic organs. This may vary from a slight degree of chronic pelvic peritonitis to cystic degeneration of the ovaries, fibrous closure of the Fallopian tubes, or general pelvic adhesions with all of their attendant symptoms and discomforts, including absolute sterility. This being the case it should be the duty of every physician to urge the removal of the appendix in every young woman when there is any inflammation of this organ. Such removal should occur promptly and preferably during a quiescent interval when the dangers of the operation are practically nil.

Proceedings of Societies.

NEUROLOGICAL INSTITUTE, NEW YORK.

Clinical Conference Held December 24, 1914.

Dr. EDWIN G. ZABRISKIE in the Chair.

Subdural Contusion Causing Paraphasia and Hemiplegia.—Dr. JOSEPH COLLINS presented a right handed man who, on December 2d, had fallen from the seat of the wagon and struck the back of his head. He was unconscious for a few minutes. The physician who saw him six hours later said that the patient was unable to give an intelligent account of what had happened to him, and that he could not write. He noted, however, that the face was flushed, the right pupil dilated, the right side of the body and face paretic, and the pulse rapid and full. The patient complained of headache, particularly on the left side, the next day of headache and dizziness, although he went to work on a delivery wagon. He was found unconscious by a policeman in an areaway. He is believed to have fallen while entering the house to deliver an order. He was taken in an ambulance to a nearby hospital, but as he had no wounds and had recovered consciousness, he was transferred to Bellevue Hospital, where he remained only a few hours. He then went to his employer and then went home. When his wife reached the house two hours later, he was not able to talk intelligently. She made out that he felt dizzy and had been to a hospital. The doctor said his condition was practically the same as the day before. The next morning, the right hemiplegia was more evident and at noon, when he bled him, it was quite complete. After the phlebotomy he felt better and the hemiplegia was less. The next day, when he was brought to the hospital, examination showed paresis of the right leg, arm, and face. Neither knee jerk was elicitable, both ankle jerks were present, and the Babinski great toe phenomenon existed on the right side. The right abdominal and epigastric reflexes were barely elicitable, while those of the left side were normal. There were no ocular abnormalities and no sensory disturbances. The most striking objective symptom was paraphasia. This was illustrated by the following questions and answers: When being tested for astereognosis, he named several objects correctly. When

a hammer was put in his hand he said, "Key, you can have it in the street you can whisple it." He recognized he was talking nonsense and acted as if embarrassed.

The striking features of his physical examination were, first, the slight hemiplegia of the right side; second, the paradoxical condition of the knee jerks and ankle jerks; the former being absent, the latter present, with the existence of a right sided big toe phenomenon; third, paraphasia. The fact that the cerebrospinal fluid contained no blood; that the hemiplegia disappeared rapidly, and that the period of unconsciousness was very brief, permitted them to say that the lesion was not a subdural hemorrhage. A contusion of the coverings of the brain associated with a mild edematous state of the cortex of the left hemisphere and involving the foot of the Rolandic fissure and first temple convolution explained his symptoms and the way they developed. The headache and vertigo, the time and occurrence of the hemiparesis and then of the hemiplegia, whose intensity was mitigated by the phlebotomy, the paraphasia, the preservation of internal speech, were all quite typical of such a lesion. The way in which the man recovered was also quite characteristic. To explain the absent knee jerks (they were not elicited by any of the physicians who examined him during the first ten days of his stay in the hospital) it might be suspected, first, that he had tabes or beginning general paresis. That suspicion was at once allayed by the report from the laboratory of his serum and cerebrospinal fluid which was entirely negative to the Wassermann test and by the absence of physical signs indicative of either of these diseases. Second, it might be assumed that the patient, at some time during his infant or adult life had diphtheria, or other infectious disease which was followed by polyneuritis of sufficient intensity permanently to interfere with the conductivity of the reflex arc over which the excitation of the knee jerks traveled to and from the cord. So far as he knew he never had such disease. Third, it might be assumed that his knee jerks were elicitable during the ten days, though no one was able to demonstrate them. The probability of this was all that could be brought up to confront this assumption. Finally, it might be conjectured that the edematous state of the cortex of the left hemisphere, or the jolt of the spinal cord that might have come to it when he fell, inhibited the manifestation of the knee jerks. It was difficult to explain how this could be accomplished without inhibiting the ankle jerks as well. Ten days after admission to the hospital the patient's right knee jerk was definitely obtainable on reinforcement, the left was obtainable in a very sluggish way without reinforcement. The Babinski phenomenon disappeared. The epigastric and abdominal reflexes were elicitable and were more marked on the left side than on the right. There were still evidences of a right sided hemiplegia. The patient's spontaneous speech showed no disturbance, but a slight paraphasia was demonstrated when he attempted to name objects quickly and to talk about them. He maintained that he felt very well and was anxious to return to his work.

Dyspituitarism.—Dr. EDWIN G. ZABRISKIE presented a man, thirty-seven years of age, an up-

holsterer, Jew, married, father of two children; wife had had no miscarriages. His only previous disease was a pain and swelling of the right hand which lasted about nine months. For the last four months he had been complaining of pains in the calves and knees, occasional bending of his legs when walking, puffiness and swelling of the eyes, weakness which disappeared when he went to bed. These complaints were enough to prevent him from working. Physical examination revealed a prominence of his frontal ridges, slight exophthalmos, a tendency toward prognathous jaw, apparent general enlargement of all the bones and soft tissues of the face. Facial innervation was equal, tongue protruded straight, thyroid appeared to be slightly atrophied. His station and gait were good and he had no flat foot. There was marked tremor of the hands on extension, and his fingers appeared to be elongated and slightly square at the ends. His reflexes were all normal; there was slight von Graefe, difficulty in convergence (he complained of occasional diplopia), no nystagmus; pupils were rather irregular in outline and reacted sluggishly to light and accommodation. His visual fields showed that they were practically normal for form and color. Speech was rather husky, hearing good, his abdomen negative. The report on his nose by Doctor Culbert showed a deviation of the septum, middle turbinates enlarged, and the right undergoing polypoid degeneration. The tonsils were much enlarged and unhealthy, and he had what appeared to be mucous patches on the uvula and fauces. Transillumination showed all sinuses dark. Wassermann reaction on two occasions was negative. Blood count normal, blood pressure chart, while in the hospital, fluctuated slightly between 130 and 115; his pulse ranged between 80 and 100. A radiograph of the sella turcica showed no enlargement. He could give no very clear history about the change in contour in his face, but there seemed to be a definite history that his face had changed somewhat in appearance. He was presented as probably having disturbance of his hypophyseal function, possibly as a beginning acromegaly.

Regular Meeting, January 14, 1915.

Dr. J. RAMSAY HUNT in the Chair.

Dystonia musculorum deformans or Athetosis.

—Dr. JOSEPH COLLINS said that ever since the era of clinical differentiation of neurological disorders, and especially during the past generation, efforts had been diligently though unsuccessfully made, to classify a form of disorder characterized particularly by muscle hypertonus and deformity, dependent apparently upon twisting, rather rhythmical movements of the trunk and extremities, with consequent and often proportionate disturbance of function, occurring especially in young people and progressing to profound incapacity. Such disorder had been classified with the chronic degenerative choreas and as a special type of athetosis. Ziehen described it as "tonic torsion neurosis," and he was not at all sure that this was not a far better name than that which Oppenheim suggested a few years later (1911), viz., "deforming muscular dystonia." The latter, especially when Latinized, had a certain swing to it which had apparently appealed

to many writers, but the designation of Ziehen seemed to have no objectionable feature. The disorder was a neurosis; the conspicuous movement and resulting deformity was a torsion, and the state of muscles attending it a tonic one. What the nature of the disease was, they did not know, and it was essential that every case be studied most carefully, particularly its initial display, the course of the disease, and its progress. In this way the natural history of the disease would be revealed and they might infer in a measure its origin. For instance it was stated that the disease was limited in its occurrence to Galician Jews. The case reported was that of a young man, Anglo-Saxon, born in this country of English parents. It was further stated that the disease was a progressive one, which meant that it went on to incapacitate the patient. Doctor Collins's case had been under observation for twenty years, and during the last ten years the man had grown steadily better so that he earned a man's wage, and was occupied at a blast furnace. He was thirty-six years old. His parents were strong hardworking persons who had eleven children, nine of whom were living; all were in good health, save one with hip joint disease. So far as either parent knew of the family history, there was no disorder similar to that with which this patient was afflicted. His birth was normal; he was slow to walk, which was attributed to his being a fat healthy baby. When he was two years old, he began to walk, but fell very easily. He had not outgrown this, so that when five years old he was taken to a hospital for this and because of what appeared to be incontinence of urine. At the hospital electricity was applied to his back for two or three years, but the inexpertness in walking was not influenced. When eight years old, he sustained a fracture of the left thigh, having been run over by a wagon. After this healed he had seemed to walk better for a time, but relapsed. At eleven years he had fallen from a bicycle and broken the knee cap, which had laid him up for three months. After this he was in the hands of an orthopedic surgeon for two or three years. Doctor Collins had first seen him July 11, 1896, at which time he was sixteen years old. His complaint at that time was best stated in his own words: "I can't walk like other people. I can't straighten out my legs properly and walk. I am nervous; I can't keep still or sit still and I can't use my left hand the way I should, the thumb does not work properly. My strength is all right, but I get twisted up like when I try to use it and I sweat more than other boys. When I forget myself, I am very much better. There are times when I have cramps in the calf, particularly the right one in the morning, and at times the thigh pains where it was broken. If I could walk right and sit still I should feel quite well."

Examination at that time showed a well nourished boy, who walked in a queer semiflexed twisted way, but he could do everything for himself with his hands and with his legs. When he stood, both knees were semiflexed, the right more than the left, and there was a rhythmic twisting movement of the body on the pelvis. The muscles of the extremities stood out in hard bundles, the head was turned slightly to one side, the muscles of the neck appeared

tense, and there was an agitation throughout the entire body as if rhythmic twisting impulses were being sent into it. He was firm and square on his feet, and there was nothing resembling ataxia or titubation. When he walked the knees were semi-flexed, the toes clutched the floor clawlike, the torso swayed from side to side, and the whole gait was that of some queer bird. He often fell because he stumbled or caught the right toe. The physical examination showed very little abnormality, save the increased tonus and volume of the muscles. The tendon jerks, the superficial reflexes, the voluntary strength of special senses were all quite normal. The striking physical signs were the muscular hypertonus, the increased volume of the muscles, and the deformity which resulted apparently from the torsion. Mentally the boy was very well developed, not only of good intellect, but of good disposition. His case was interpreted as a variety of chronic degenerative chorea and was classified under the tics. It was recognized, however, that the movements were not tic movements, inasmuch as they did not have the sharp constant twitch, but there was no caption under which it could be classified more closely. He was placed under a treatment particularly of graduated exercises, but had made no improvement. On January 22, 1897, six months after he was first seen, the rhythmic jerkings were very marked and they increased as soon as he was spoken to or when he attempted to do things. They were very much like the pouting self conscious wrinkle that a child displayed when embarrassed, and soon after extended all over the body, twisted his head to the left and the body on the pelvis. He complained of cramps on awakening and of cramps in the extensor muscles of the hand during the day. In November of the same year, a note of similar import was made, another effort being made to describe the queer rhythmic torsion movements. Three years later, there was no change, save that the superficial reflexes, abdominal and epigastric, were very lively and Babinski phenomena existed on both sides. In July, 1905, he began work for the first time, mixing sand for iron moulders. He said he had been feeling better since he went to work, and that he always felt better when occupied. He was able to do a good day's work and he earned a man's wage. Before taking up this job he had done some clerical work, as he wrote very well. He had good days and bad days in walking and some days he could straighten up very well, while at other times he was twisted. He did not sweat as much as formerly and he did not stumble. Examination showed that when he stood his body was bowed slightly to the right, the right foot a little forward. His head was twisted toward the right, his body likewise on the pelvis, and while standing, there was a constant rhythmic movement of the trunk. The hands were still and likewise the upper extremities; the neck was large and the muscles were hypertrophied. The tendon jerks were lively and Babinski still existed. All the superficial reflexes were lively, and the special senses and the organs that subserved them were apparently all normal.

In November, 1910, the conditions found were practically the same as those which now existed.

The most striking thing about him was the twisting of the head on the neck and his body on the pelvis. The question was, Should this case be classified as a case of dystonia deformans progressiva of Oppenheim, or an extraordinary case of athetosis, or should it be regarded as a chronic chorea? The one thing to be said in favor of looking upon the disorder as an athetosis, the remnant of some lesion in the internal capsule in its passage through the thalamus, was the existence of a Babinski on both sides. It was difficult to imagine a condition of degeneration in the pyramidal tract as the result of movements such as this boy had had for thirty-five years that would permit the display of the Babinski phenomena, as an exhaustive state of the neurons.

Brain Tumor with Jacksonian Epilepsy.—Dr. FOSTER KENNEDY presented a case of Jacksonian epilepsy in a woman, twenty-eight years of age. The first convulsive attack had occurred in March, 1912, while she was at church; onset without warning. For a year previous, there had been strange subjective sensations on the left side, so slight as to have been easily relieved by a short walk, a glass of water, or some similar way of diverting her mind. Her attack on this first occasion was exactly similar to some seen shortly after admission. Her left knee drew up in a tonic spasm, then stiffened out and was widely abducted. The left hand at the same time drew away and was extended from the shoulder at about a right angle from the body in a tonic spasm. Her leg still abducted widely, then began a series of clonic spasms, and the arm gradually relaxed until the left hand dropped and began a series of feeble clonic spasms. The hand ceased first, the leg continued the twitching for about one minute later; the whole attack probably being about two and a half minutes in duration. The first attack was followed by a short loss of consciousness. The second attack occurred about five months later, in September, 1912, and was similar; there was also loss of consciousness. The third attack had occurred after an interval of eighteen months in March, 1914, and a fourth in September, 1914, and the fifth on Christmas morning. These were practically all of a like character. On January 3d, however, another convulsive attack had occurred, quite severe and with loss of consciousness, and since that date the patient had had one long series of Jacksonian attacks limited to left leg, arm, and side of body. There had been intervals of several hours at night when the patient had been quiet, but apart from this, some twitching had occurred several times an hour. At times the whole left sided convulsion was repeated, at others the leg alone was involved. There had been no loss of consciousness since the onset of this series on January 3d. There was no hemianopsia or depression of the left sided reflexes following an attack, and no sensory disturbance had been elicited. The plantar reflexes were never flexor, often absent, more nearly pure extensor on the left than on the right. There was an early stage of optic neuritis on both sides. There was a great weakness of left leg and less of right arm. Some pain was complained of in the neck and muscles. No persuasion succeeded in getting patient to move the leg or stand upon it during

an attack. She was unable to move the left leg or toes. On January 13, 1915, emotional innervation of face was normal on both sides. Abdominal reflexes were diminished on the left side. Distinct contraction of intercostal muscles and erector spinal occurred on the left side during an attack. Percussion and auscultation of skull were negative. There was a slight spreading of convulsion to the right toes during the height of the attack. On January 14, 1915, there was a tendency to ankle clonus on the left side, and five to eight false clonic movements were elicited.

The case was shown as one of tumor formation in the right Rolandic area. An operation by Doctor Elsberg revealed the presence of greatly increased intracranial pressure, due to the presence of a highly vascular neoplasm, macroscopically glioma, for the most part subcortical to the right motor area, but becoming cortical in the centre governing the lower extremity. No attempt was made to remove the growth, and the operation was well borne.

Brain Tumor with Death from Respiratory Failure in Early Stage of Ether Anesthesia.—Dr. J. RAMSAY HUNT reported the case of a man thirty-six years old, newsdealer by occupation; previous history was negative; no trauma, no luetic infection. Present illness began nine weeks ago with headache localized chiefly in the frontal region. He continued his work for two weeks, suffering with headaches which were most severe in the morning hours. He grew rapidly and progressively worse, severe headaches, dullness, and memory disturbance constituting the chief symptoms. He was admitted to the Neurological Institute, third division, on December 29, 1914. After admission headaches were frequent, very severe, and associated with vomiting. There were also dullness and apathy and he slept a great deal of the time. There was incontinence of urine and feces. During the severe paroxysms of headache the pulse was slow (44) and the respirations were irregular. In one severe attack of pain there was twitching of the facial muscles, with rigidity of the arms, but no loss of consciousness. From the time of admission to the date of operation, January 13th, there were frequent crises of severe head pain with projectile vomiting, incontinence of the sphincters, dullness, torpor, and somnolence. The temperature range was normal or slightly subnormal; respirations varied from twelve to twenty to the minute. There was also well marked bradycardia; the pulse on some days was only 44. This had varied considerably from day to day, and some of the pulse records were as high as 128 in the minute; so that while bradycardia was most constant, there had been occasional tachycardia and considerable irregularity in the rhythm. There was frequent yawning. The urine was normal and the Wassermann reaction of the blood was negative.

Examination showed a patient slightly built and much emaciated. Even in a somnolent and torpid state, the facial muscles were contracted as if in pain. He was unable to stand or walk and there was great general weakness, with slight rigidity of the neck. The pupils were equal and reacted to light and accommodation. There was no ocular palsy and no nystagmus. The other motor cranial nerves were normal, except the left facial, which

showed a slight paresis. This was inconstant and not very definite. It disappeared on emotional innervation. Hearing was equal on the two sides and was normal. The sense of smell was undisturbed. Doctor Holden reported the vision in each eye to be 20/20, with no alterations of the visual fields. There was marked papilloedema in each eye, the elevation measuring four diopters; the corneal reflexes were preserved. There was no paralysis and no tremor of the extremities. The left arm showed a distinct disturbance of diadochocinesis, also a pointing toward the left which was not present on the right side. There was also slight incoordination of the left upper extremity; the knee jerks were equal and not exaggerated, and the Achilles jerks were elicitable. The arm jerks were present and diminished. The abdominal and cremasteric reflexes were present. The plantar reflexes were present, and of the flexor type. At times a suspicious extensor movement was noted upon the left side. The general sensation was normal, no disturbance of the stereognostic sense. The heart and lungs, examined by Doctor Norris, were normal.

On January 13th, it was decided to perform a decompression operation for the relief of intracranial tension. His pulse was 78 and respirations 24, shortly before the ether was administered. After ten minutes of etherization and before any operative procedure had been attempted, respiration had suddenly ceased. He became cyanosed and the pulse was very rapid. Artificial respiration was immediately instituted, with marked improvement in both color and pulse. After three quarters of an hour of artificial respiration, the pulse and color remained good, but there was no sign of spontaneous respiratory movements. It was then decided to puncture the ventricle in an attempt to relieve the intracranial pressure. This was done by Doctor Elsberg, but no fluid was obtained. The patient became pallid and practically pulseless, but with artificial respiration the color and pulse had rapidly returned. This was continued for another twenty minutes without signs of a return of the respiratory function. On the theory that the medulla had been forced into the foramen magnum by the subtentorial tension, with compression of this structure, it was then decided as a last resort to attempt a suboccipital decompression, in an effort to relieve the strangulation. This was done with great celerity by Doctor Elsberg, who rongueured the occipital bone on the left side down to the foramen magnum. On opening the dura, there was little or no discharge of cerebrospinal fluid, but the cerebellum bulged into the wound and was evidently under pressure. Patient again became pallid and pulseless, but artificial respiration restored both the pulse and color, although the force and frequency of the heart had become much weaker. No improvement resulted from this decompression, and after twenty minutes more of artificial respiration, the heart beat had gradually ceased. No autopsy was permitted.

Sudden death from respiratory paralysis in cases of brain tumor was by no means a rare complication. It occurred after lumbar puncture, during operations for tumor, or even quite spontaneously. As was shown by their case, it might also occur in an early stage of ether anesthesia. It was also a well

known clinical observation that sudden changes in the position of the head had produced serious alteration in the circulatory and respiratory functions, especially in tumors of the posterior fossa. A sudden respiratory paralysis such as had occurred in this case, might be explained by hemorrhage into the tumor, especially if this were in or near the medulla, or by sudden forcing of the medulla oblongata with certain adjacent portions of the cerebellar structures into the foramen magnum with immediate constriction of its vital structures. This mechanical strangulation with "ringing" of the medulla or cerebellar cone, was a well recognized pathological lesion, and autopsies in such cases showed a well defined imprint of the great foramen on the soft nerve structures with internal hemorrhages throughout its substance. If such accidents occurred on the operating table, an immediate effort might be made to free the constriction, but even this forlorn hope was hardly practicable at other times; Doctor Cushing had reported the return of spontaneous respiration forty-five minutes after its cessation, by emergency suboccipital decompression. The best preventive measure, in fact, was early decompression.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

A Nursing Manual for Nurses and Nursing Orderlies. By DUNCAN C. L. FITZWILLIAMS, M.D., Ch.M., F.R.C.S., Surgeon-in-Charge of Out-Patients and Lecturer in Clinical Surgery, St. Mary's Hospital; Senior Assistant Surgeon, Paddington Green Children's Hospital; Captain First City of London Field Ambulance, etc. London: Henry Frowde (Oxford University Press); Hodder & Stoughton, 1914. Pp. viii-466. (Price, \$2.)

This is a nursing manual which can be unreservedly recommended to all who are interested in the subject. The book is strictly true to its title; it is concerned with nursing; it is practical and reliable; and contains about as much really useful matter as any other half dozen books on nursing which have come under our notice. For the so called practical nurse, nothing better has yet appeared; and if nurses in training schools could be persuaded to study this volume, it would add to their usefulness without detracting from their dignity. It is a salutary antidote to the class of work which substitutes the rudiments of bacteriology, chemistry, plumbing, and voice culture for nursing.

Textbook of Surgical Operations. Illustrated by Clinical Observations, for Physicians and Students. By Prof. FEDOR KRAUSE, Privy Medical Councillor, Directing Physician, Augusta Hospital, Berlin, in Association with EMIL HEYMANN, M.D., Chief Physician, Augusta Hospital. Translated into English and Edited for American Readers by ALBERT EHRENFRIED, A.B., M.D., F.A.C.S., Assistant Visiting Surgeon, Boston City Hospital; Junior Assistant Surgeon, Children's Hospital; Surgeon, Boston Consumptives' Hospital; Assistant in Surgery, Harvard Graduate School. In Six Volumes. Volume I. With 55 Plates Having 233 Illustrations in Two or More Colors and 61 Figures in the Text. New York: Rebman Company, 1915. Pp. xviii-267. (Price, \$6.)

The author has approached the subject of operative surgery in a new way in that he has introduced actual cases and, after a short account of history and symptoms, has described in detail the operative steps and aftertreatment. The "case method" of teaching has thus been adapted to

the field of surgical technic. In this way the book is essentially a personal work, both in dealing with the author's own cases and describing the method of operating which he has found most efficient in his wide experience as a surgeon. His position as a teacher has made him particularly well qualified to make the text clear, concise, and systematic. The present volume, which is the first of six, takes up general surgical technic, anesthesia, and special operations on the head, face, and brain. The illustrations are numerous and excellent, and the student receives a clear idea of each step in such important operations as uranoplasty, mastoidectomy, trephining, excision of Gasserian ganglion, etc. The translator has wisely adapted the work to the American student and practitioner of surgery by abridging discussions of technic, inserting descriptions of methods more in favor here, and adding illustrations. In the present form, the work will doubtless find many friends in this country, both as a textbook and a work of reference.

Taschenbuch des Feldarztes. II. Teil. Herausgegeben von Generalarzt Professor Dr. AD. DIEUDONNÉ, Geheimerat Professor Dr. M. v. GRUBER, Professor Dr. H. GUDDEN, Oberstabsarzt z. D. Dr. W. HASSLAUER, Privatdozent Dr. W. HEUCK, Stabsarzt Professor Dr. FR. SALZER, Oberstabsarzt Professor Dr. G. SITTMANN, Professor Dr. W. SPIELMEYER, Professor Dr. W. WEICHARDT. Mit einer Tabelle und 12 Abbildungen. München: J. F. Lehmann's Verlag, 1914. Pp. viii-238.

This short handbook for the use of the surgeon in the field is the second part of a similar treatise already in circulation, devoted chiefly to the surgical side of the subject. The second part deals with medical topics, including typhoid, dysentery, mental diseases, specific affections, etc. It is written by various authors conversant with the needs of military practice. It is a compact volume, which can easily be carried about, and gives the essential points in symptomatology and treatment. Various schematic charts are included to help in differential diagnosis. The book appears at an opportune moment and will doubtless be made use of on the Continent, while it has interest even on this side of the ocean.

Nursing Ethics. A Lecture by T. PERCY C. KIRKPATRICK, M.D., Fellow and Registrar of the Royal College of Physicians of Ireland. Dublin: Printed at the University Press, 1915. Pp. 38.

This is a capital lecture on nursing ethics, and is written in a sympathetic and kindly way. The author's standpoint is high, but thoroughly practicable; and his views will prove of more real benefit to nurses than much of the "ministering angel" mush which is served out to them in graduating addresses. It should be read by all nurses who can procure a copy, but we fear that this number will not be large, for the pamphlet does not seem so far to be obtainable in this country.

Lehrbuch der Massage. Von Dr. med. A. MÜLLER in M.-Gladbach. Mit 341 zum Teil farbigen Abbildungen nach Originalzeichnungen des Verfassers. Bonn: A. Marcus & E. Webers Verlag, 1915. Pp. xvi-675.

This book of A. Müller bears all the marks of German thoroughness. There are many points of originality and abundant elaborateness in the 675 pages. The illustrations are excellent line diagrams, making plain the manipulative procedures recommended, all in the minutest detail. Especially commendable is the presentation of physiological and pathological phenomena.

The method of manipulation recommended is in the main excellent, but the author recommends the use of the knuckles of the doubled fist quite as much as he recommends the finger tips or the ball of the hand. It is perfectly well known to experts that occasionally this method may be used, in certain regions, especially where there are evidences of fibromyositis, but unless the knuckles are applied with extraordinary gentleness and slowness, it produces too much pain and is not nearly so efficacious as seizing the parts and stretching them back and forth or over the underlying tissues, both by traction and lateral motions, thus producing such effects as breaking up contractions and aiding restoration of elasticity.

Most patients resent and rightfully refuse to endure such a brutal bruising process, unless they are athletes in train-

ing. The ordinary patient who needs massage is in a state of exhaustion and will show the characteristic phenomena by local tenderness. Doctor Tyrnauer, of Vienna and Carlsbad, one of the most skillful men in Europe, teaches the use of the ball of the thumb. This can easily be learned, although at first it is distinctly more fatiguing to the operator, and requires at least six months of special training to perform well. In the description of procedures, most space is given by Doctor Müller to the muscles and their attachments. There is relatively little said about the nerves, either centres or in continuity, or indeed about the lymphatic channels which we in America regard as so important.

The whole book, however, will prove of large use to anyone who desires to perfect himself in this scientific handicraftsmanship. So elaborate is the presentation, that one cannot fail to learn a large number of facts and points of expertness from an author who is obviously a master in his art.

Interclinical Notes.

Several years ago, we were one of a small but intrepid band of readers who discovered Melville Davison Post as a writer of original mystery stories. Since then, despite one cruel allusion to the therapeutics of the country doctor in a powerful tale which appeared in the *Saturday Evening Post*, we have maintained our allegiance to this writer and are mighty glad to greet him in the April *Red Book*, where he tells of The Straw Man, quite a little masterpiece of short story construction.

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The reference to the therapeutics of the country doctor which Mr. Post made, formed the crux of his story. Mr. Post had his physician treat a headache with morphine tablets and stated that this was regular rural practice. The unhappy hero of the story becomes a morphine habitué and in the climax is derided as a "dope" by the very drugstore clerk who has kept him supplied with the tablets—needless to say, this was in the pre-Harrison days. Physicians ought to know Mr. Post's book, *The Strange Schemes of Randolph Mason*, parts of which are based ingeniously on medical chemistry.

* * *

The exquisite *Century* makes its April bow with an anonymous serial, *Me*, which we assure the reader is bang up to date socially and sexually. The heroine is the daughter of an Oxford man and a descendant of Sir Isaac Newton, getting her taste for apples from the latter, we presume, or perhaps from Eve. We found the essay on the Fall or Rise of Socialism, by Edwin Davies Schoonmaker, a most striking piece of work; the writer thinks that socialism is in full working order in all the European armies and believes that the soldiers will wonder why they cannot be provided by the State in times of peace with three good meals and a place to sleep. Some of our friends will recall that similar comforts are provided for the doctors of the army, navy, and Public Health Service.

* * *

Those who read Arthur Bullard's account of the British War Machine in the *Outlook* double number for March 24th, will not be encouraged to believe that the European contest is at all near its close. All newspaper men and even journalists will read with special interest the installment of Lyman Abbott's reminiscences; we are among those grateful that the venerable editor's labors finally led to the establishment of the *Outlook*, a journal to be thankful for, most happily devoid of priggishness, cant, hypocrisy, and devotion to special interests.

* * *

The *Survey* for March 20th devotes space to consideration of the first report of the Public Health Council created about one year ago as a part of the State health department; leadership and cooperation and not coercion is to be the keynote of the new idea. The *Survey* also utters a warning against coming legislation in Colorado against Judge Lindsay, the object of which is to do away with the powerful safeguards which that good man has thrown about the children of Denver; it also points out that another Triangle fire is quite possible under existing laws in New York State.

Meetings of Local Medical Societies.

MONDAY, April 5th.—Clinical Society of New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital; West Side Physicians Economic League.

TUESDAY, April 6th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity; Broome County Medical Society; Medical Society of the County of Ulster; Medical Society of the County of Orange; Medical Society of the County of Cattaraugus.

WEDNESDAY, April 7th.—New York Urological Society; Brooklyn Society of Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Bronx Medical Association; Elmira Academy of Medicine; Schenectady Academy of Medicine; County of Rockland Medical Society; Medical Society of the County of Genesee.

THURSDAY, April 8th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Brooklyn Pathological Society; Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers; Society of Sanitary and Moral Prophylaxis, New York; Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua; Medical Society of the County of Alleghany.

FRIDAY, April 9th.—New York Academy of Medicine (Section in Otolaryngology); Society of Ex-Interns of the German Hospital in Brooklyn; Flatbush Medical Society, Brooklyn; Eastern Medical Society of the City of New York; Society of Alumni of St. Luke's Hospital.

SATURDAY, April 10th.—New York Association of the Medical Reserve Corps of the United States Army.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending March 24, 1915:

Anderson, J. F., Surgeon. Detailed to represent the service at the meeting of the American Society of Pathologists and Bacteriologists, to be held at St. Louis, Mo., April 1-3, 1915. Bolton, Joseph, Assistant Surgeon. Upon completion of course of instruction at Hygienic Laboratory, directed to proceed to Cincinnati, Ohio, for duty in connection with investigations of pollution of Ohio River. Cody, H. C., Assistant Surgeon. Relieved from duty on Coast Guard Cutter *Miami*, and ordered to rejoin station at Ellis Island, N. Y. Corput, G. M., Surgeon. Directed to proceed to Tampico, Progreso, Frontera, and Vera Cruz, Mexico, and their immediate vicinities, to ascertain their sanitary condition and best measures for prevention of introduction of epidemic diseases into the United States. Goldberger, Joseph, Surgeon. Authorized to deliver the Cutter Lectures on preventive medicine at the Harvard Medical School, April 2, 1915. Herring, R. A., Passed Assistant Surgeon. Directed to proceed to Tuscaloosa, Ala., on request of the State Health Officer of Alabama, to investigate the prevalence of trachoma among the school children. Kalloch, P. C., Senior Surgeon. Granted two

months' leave of absence from March 22, 1915. **Mathewson, H. S.**, Surgeon. Granted fifteen days' leave of absence on account of sickness, from March 12, 1915. **Parcher, George**, Assistant Surgeon. Directed to report to the chairman of a board of commissioned medical officers at the bureau for examination to determine his fitness for promotion to the grade of passed assistant surgeon. **Schwartz, Louis**, Assistant Surgeon. Directed to report to the chairman of a board of commissioned medical officers at the bureau for examination to determine his fitness for promotion to the grade of passed assistant surgeon. **Smith, F. C.**, Passed Assistant Surgeon. Granted two days' leave of absence on account of sickness, March 11-12, 1915. **Sutton, Don C.**, Assistant Surgeon. Directed to report to the medical officer in charge of the Galveston quarantine station for duty. **Teufel, W. C.**, Assistant Surgeon. Relieved from duty at the Marine Hospital, Stapleton, N. Y., and directed to report to the commanding officer of the Coast Guard Cutter *Miami* for duty. **Thompson, L. R.**, Passed Assistant Surgeon. Upon completion of course of instruction at Hygienic Laboratory, directed to proceed to Cincinnati, Ohio, for duty in connection with investigations of pollution of Ohio River. **Voegtlin, Carl**, Professor. Directed to proceed to Baltimore, Md., in connection with studies of pellagra, to investigate methods of preparing corn by mills in that city. **White, M. J.**, Surgeon. Directed to stop at Cincinnati, Ohio, en route to station, for conference with medical officer in charge of river pollution studies relative to laboratory equipment and practical means of installation. **Williams, C. L.**, Assistant Surgeon. Authorized to stop at Cincinnati, Ohio, en route to Chicago, Ill., for conference with medical officer in charge of river pollution studies relative to laboratory equipments and practical means of installation. **Williams, L. L.**, Surgeon. Granted five days' leave of absence from March 11, 1915.

Boards Convened.

Board of commissioned medical officers convened to meet at the bureau, upon the call of the chairman, to examine Assistant Surgeons George Parcher and Louis Schwartz, to determine their fitness for promotion to the grade of passed assistant surgeon. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Surgeon A. D. Foster, member; Passed Assistant Surgeon E. A. Sweet, recorder.

Board of commissioned medical officers convened to meet at San Francisco, Cal., upon the call of the chairman, to make a medical survey of an officer of the Coast Guard. Detail for the board: Senior Surgeon C. C. Pierce, chairman; Surgeon W. C. Billings, member; Assistant Surgeon N. E. Wayson, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending March 27, 1915:

Birmingham, H. P., Colonel, Medical Corps. Relieved from duty at Fort Slocum, New York, about May 1, 1915, and ordered to proceed to Governor's Island, N. Y., and report in person to the commanding general, Eastern Department, for duty as surgeon of that department. **Christensen, W. A.**, First Lieutenant, Medical Reserve Corps. Now at Douglas, Arizona, is assigned to duty at Fort Crockett, Texas, upon relief from duty in Southern Department. **Crum, Wayne H.**, Captain, Medical Corps. Relieved from duty with Ambulance Company No. 1, Fort D. A. Russell, Wyoming, and ordered to proceed to the Letterman General Hospital, Presidio of San Francisco, Cal., for duty. **Freer, Arden**, First Lieutenant, Medical Reserve Corps. Assigned to duty at Madison Barracks, New York. **Gaul, John S.**, First Lieutenant, Medical Reserve Corps. Assigned to duty at Fort Slocum, New York. **Hutter, Charles G.**, First Lieutenant, Medical Reserve Corps. Assigned to duty at Columbus Barracks, Ohio. **Mitchell, Leopold**, First Lieutenant, Medical Corps. Relieved from duty at Fort Lawton, Washington, and ordered to proceed to Fort Leavenworth, Kansas, and report to the commandant, United States Disciplinary Barracks, for duty, relieving First Lieutenant E. A. Anderson, Medical Reserve Corps, who upon being thus relieved will proceed to Fort Brady, Michigan, for duty. **Snow, Corydon G.**,

Captain, Medical Corps. Relieved from duty with the Letterman General Hospital, San Francisco, Cal., and ordered to proceed to Fort Bayard, New Mexico, for duty with the General Hospital at that place. **Webster, Emil H.**, First Lieutenant, Medical Reserve Corps. Upon relief from duty in the Southern Department, ordered to proceed to his home for relief from active duty; granted one month and fourteen days' leave of absence.

Births, Marriages, and Deaths.

Married.

Chapman—Huff.—In Philadelphia, on Friday, March 19th, Dr. John P. Chapman and Miss Justina Huff. **Dowling—George.**—In Monroe, La., on Tuesday, March 16th, Dr. Oscar Dowling and Mrs. Lula George. **Porteous—Booth.**—In New York, on Tuesday, March 16th, Dr. James Lindsey Porteous and Miss Alice Hunt Booth. **Strahan—Sherman.**—In Long Branch, N. J., on Thursday, March 25th, Dr. Frank G. Strahan and Miss Florence Sherman. **Wing—Porter.**—In North Anson, Me., on Monday, March 15th, Dr. Ellery M. Wing and Miss Nellie Emery Porter.

Died.

Aiken.—In Felicity, Ohio, on Sunday, March 21st, Dr. W. H. Aiken, aged sixty years. **Alexander.**—In Maysville, Ga., on Wednesday, March 17th, Dr. M. P. Alexander, aged eighty-six years. **Alsdorf.**—In New York, on Thursday, March 18th, Dr. John Alsdorf, aged seventy-two years. **Battles.**—In Erie, Pa., on Thursday, March 18th, Dr. R. W. Battles, aged fifty-eight years. **Baylies.**—In Dighton, Mass., on Thursday, March 18th, Dr. Alfred Wood Baylies, aged sixty-nine years. **Bellinger.**—In Council Bluffs, Ia., on Monday, March 15th, Dr. Smith Bellinger, aged thirty-eight years. **Black.**—In Blacksburg, S. C., on Sunday, March 14th, Dr. John Gaillard Black, aged seventy-three years. **Chew.**—In Roland Park, Md., on Monday, March 22d, Dr. Samuel Claggett Chew, aged seventy-eight years. **Drennan.**—In Easton, Pa., on Tuesday, March 23d, Dr. Michael C. Drennan, aged seventy-seven years. **Fernitz.**—In Chicago, Ill., on Tuesday, March 23d, Dr. Gustav Fernitz, aged seventy-one years. **Foote.**—In Potsdam, N. Y., on Monday, March 22d, Dr. Jesse J. Foote, aged forty-eight years. **Jones.**—In Short Hills, N. J., on Sunday, March 21st, Dr. Henry Walbank Jones, of Houghton, Mich., aged sixty-three years. **Kingsbury.**—In Philadelphia, on Sunday, March 21st, Dr. Howard Kingsbury, aged sixty-six years. **Lauer.**—In Philadelphia, on Tuesday, March 16th, Dr. Julius Paul Lauer, aged forty years. **Littlefield.**—In Glenfield, N. Y., on Thursday, March 18th, Dr. George H. Littlefield, aged sixty years. **Mueller.**—In Lamotte, Ia., on Thursday, March 11th, Dr. John C. Mueller, aged forty-eight years. **Munn.**—In Waterbury, Conn., on Monday, March 22d, Dr. Stephen Benjamin Munn, aged eighty-eight years. **Nilsson.**—In New York, on Sunday, March 21st, Dr. Peter Nilsson, aged forty-eight years. **Norris.**—In Columbus, Ohio, on Friday, March 19th, Dr. Thomas B. Norris, aged eighty-seven years. **O'Shea.**—In East Boston, on Monday, March 22d, Dr. Daniel J. O'Shea. **Peck.**—In New York, on Thursday, March 25th, Dr. Edward Sprague Peck, aged sixty-eight years. **Post.**—In Ovid, N. Y., on Friday, March 5th, Dr. George Post, aged fifty-two years. **Rogers.**—In Plymouth, N. H., on Thursday, March 18th, Dr. Tristram Rogers, aged forty-four years. **Shadd.**—In Winnipeg, Canada, on Tuesday, March 9th, Dr. A. S. Shadd, of Melfort, Saskatchewan, aged forty-six years. **Swanson.**—In Fairburn, Ga., on Tuesday, March 16th, Dr. Robert Lee Swanson. **Tarleton.**—In New Orleans, La., on Thursday, March 18th, Dr. John L. Tarleton, aged twenty-eight years. **Tate.**—In Gettysburg, Pa., on Saturday, March 20th, Dr. Theodore T. Tate, aged eighty-three years. **Webber.**—In New Bedford, Mass., on Saturday, March 20th, Dr. Amos P. Webber, aged fifty-six years. **Williams.**—In Philadelphia, on Thursday, March 18th, Dr. John H. Williams, aged forty-five years.

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THE TRIALS AND TRIUMPHS OF THE SURGEON.*

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Many years ago, the great, the wise, the eccentric, the irascible, the lovable John Abernethy, as he walked into the lecture room in St. Bartholomew's Hospital, looked out upon the crowd of medical students, and said, half in curiosity, half in sorrow, "Good God! what is to become of you all." The same thought must often arise in the mind of every teacher. What will become of the students? We all know in a general way. All will die, sooner or later. All will get more or less happiness and prosperity. Some will become rich. Most will continue poor. Some will remain bachelors. Most will marry and breed children for good or ill. Most will cleave to the profession for life. Many will abandon it. A very few will become eminent, but a majority will not. Some will rise as the soaring eagle, others will mount as the mousing owl. Some will snatch at comets and grasp them. Others will only pick up jelly fish and be stung for their pains. Some will set traps for birds of paradise and catch skunks. Some will dwell upon the muck heap. Others will move among the constellations of profundity drinking in as mother's milk, the glory of the stars.

In 1869, Sir James Paget endeavored to find a more specific answer to Abernethy's question. He traced the careers of 1,000 pupils of St. Bartholomew's for fifteen years after their graduation: Only twenty-three achieved distinguished success; sixty-six attained considerable success; 507 attained fair success, that is, made a decent living but worked hard to get it; 124 did very poorly indeed; fifty-six failed utterly; ninety-six abandoned the profession; forty-one died while pupils; eighty-seven died during the first twelve years of practice and twenty-one of them perished from diseases due to their calling.

The conclusion is that only 8.5 per cent. of a class will attain eminence or achieve considerable success, that fifty per cent. will make a decent living, but it will be bought by strenuous effort, that eighteen per cent. will do very poorly indeed, or will fail utterly, and that nearly ten per cent. will abandon practice. Were the estimate made thirty years after gradua-

tion, it would be found that a somewhat larger percentage had attained eminence or considerable success—that a somewhat larger percentage had failed—that a larger percentage had given up practice, and that a greatly larger percentage had died.

According to Paget's figures, almost one third of any class of students made a mistake when they selected medicine for a profession. I am disposed to think that Paget's figures would apply today, that about the same proportion of a class will succeed, about the same proportion will fail, about the same proportion will abandon the profession, most of them will feel a lack of public understanding, will be denied public appreciation, will pass lives made up of laborious days, which know no eight hour law, and of disturbed nights, each of which may be a continuous performance, will do much good, for which they will obtain small reward and little praise, and will die, worn out, long before the period allotted by the psalmist. In using the term, success, I do not regard it as synonymous with wealth. Some men are so busy making money that they have no time to study, to observe, or to think. A rich man who has not brought honor to his profession, is not a real success. He has lost more than can be paid for by wealth. He may be scheduled as a successful man, but he knows himself and knows he has failed. "He that maketh haste to be rich shall not be innocent." To quote Captain Cuttle, "In the proverbs of Solomon you will find them 'ere words, and when found, make a note of."

It is discouraging to think of so many failures and so few successes. Some of the failures would have succeeded in another occupation, and when they entered medicine spoiled a good business man, lawyer, broker, or farmer. Some would have failed in anything because of temperamental inaptitudes or futilities, cowardice, stupidity, laziness, mendacity, dishonesty, disloyalty, or jealousy. Many such men began the study as Richard Carstone did in *Bleak House*—because it would do "as well as anything else." Some most worthy men fail because of pure ill luck, and are elbowed out of every opening, and never gain credit for any of the good things they do.

Some years ago, after reading Paget's figures, I undertook an investigation as to why men leave the profession, as so many men do. I found the reasons various. Some complained they got no help from the profession. Such men are like an electric button and won't do any work unless they are pushed. Others groaned that they had no pull, evidently believing that their great abilities would have burst into effervescence had a kindly barkeeper been adjacent to open them up. Others asserted that

*Delivered before the Philadelphia County Medical Society, March 10, 1915.

they were persecuted. As a matter of fact, when a man becomes an embodied grievance, there is generally something wrong with him. Some did not reach the top, where there is said to be so much room, because there was no elevator and they were too lazy to climb there. They preferred sitting at the bottom and complaining. Such men work like a sun dial on a dark day and move like a glacier. Some failed because what they did not know about medicine would populate a colossal morgue; some because they tried to screw up their energies with a corkscrew; some because they were so busy attending to other people's business they could not find time to work.

Some got too poor to stay in the profession without learning to live on the diet of Lucian's moon men, that is, the odor of a roast frog's leg and air squeezed into goblets. Sir Conan Doyle says he abandoned the profession because the profession abandoned him. Some were too rich to be bothered with practice. Some did not like the work and gave it up for more congenial employment which had regular pay days. Some could not stand the responsibility. Some fell into a big chance out of medicine and took it. The wives of some objected strongly to the profession, and the husbands became meek, as they wished to inherit the earth.

It is interesting to note what men do who give up medicine. History shows that there is great diversity in their choice. Keats gave up being a dresser in Guy's Hospital and wrote the *Ode on a Grecian Urn*. The late Herman Mutgett, alias Mr. Holmes, took up wholesale murder for life insurance. Oliver Wendell Holmes became our greatest literary man. Doctor Garrison went on the Supreme Bench of New Jersey, and Doctor Cook went somewhere (I don't know where) up north. Some go to the devil and some go to Congress. One is a major general and was chief of staff of the United States Army. One is the celebrated Sir Conan Doyle. One is Governor of West Virginia. One was a pauper in Blockley Alms House. One is a prisoner in the Eastern Penitentiary of Pennsylvania. One is a railroad conductor on the Pennsylvania Railroad. One became a Philadelphia millionaire. Some sell books, some become life insurance agents, some write for magazines, some travel for drug firms, and a good many adopt matrimony for a profession and settle down in order that they may settle up. Such matrimony may prove eminently successful as a breeder of happiness and it may not. It is usually a life sentence only to be commuted by bad behavior. Most men who take up this calling to obtain an easy life, find that they earn their wages. Those who embark on the matrimonial sea for gain and not for love, often come to wish they had missed the boat, and ever afterward regard the elder Weller as having been directly inspired, when he told his son, that if he felt like getting married, to "Pizen yourself first, Samivel, and you will be glad on it afterwards." The lady in the case, too, may sometimes have reason to doubt if she obtained the worth of her money.

It is vastly to the credit of the medical profession that so few leave it to go into quackery; I only know of two or three who did do so. If a regular chooses to apostasize and then turn quack he can

often make money rapidly and in quantity, but very few are willing to become pariahs. The old training has left its mark. Certain beliefs are fixed so firmly that they become as intuitions. A man may leave the army of healing, but he seldom joins the enemy. He feels, as did Doctor Holmes, who, though he had abandoned medicine for literature, cried out to the members of the profession, "Claim me, hold me, call me brother still." In holding certain higher ideas in spite of all temptations to abandon them, the medical profession surely stands above the common run of men. Robert Louis Stevenson said: "There are men who stand above the common herd—the soldier, the sailor, and the shepherd infrequently; the artist rarely; rarer still the clergyman; the physician almost as a rule." Failure, disappointment, disenchantment, embitterment, neglect, even actual want very seldom cause a physician to become a quack and thus cease to be a man who stands "above the common herd."

Of all the causes of failure, I doubt if any is more potent than vanity. The proper attitude toward all scientific questions is one of humility. When one can no longer wonder at nature, he can no longer progress. When he would settle everything by a formula, he is consigned forever to the compartment of useless odds and ends. Vanity tires out even the most patient colleague, gives a weapon to every opponent, and potential friends quickly weary of the society of the discoverer of everything that is useful and important. Such men obey the command to let their light shine before men, and it shines so strongly and persistently that it resembles a conflagration in a shop of fireworks. It may be added that those about find their nostrils assailed with noisome odors and their ears bombarded with sounds of destruction. Were the walls which bar the way to success like the walls of Jericho, they might be expected to fall from noise, but they do not do so. The man who does the bombarding is of small calibre in spite of being a big bore. Every now and then we see such a man purchase a two cent stamp as though he were laying the cornerstone of a cathedral. Such a vanity makes one suspicious, critical, resentful, ungrateful, and bombastic. The athletic exercise of throwing bouquets at oneself never strengthens the muscles of the mind. When it is practised for a long time, a man sets as exaggerated an estimate on his own value as though he were suing a railroad company for damages. Such a man can't obtain real success, but he may get rich, because he may persuade the general public to take him at his own estimate. The public may know he is a great man, just as Thaddeus Stevens knew that his client was an honest man. Stevens said: "Your honor—my client is an honest man. I know he is an honest man because he told me so himself."

The vain man in surgery is a deadly peril. He mistakes his own half formed opinions for oracles speaking within him. He is never conscious of his mistakes and hence keeps on making them. He misleads others by his positive assertions regarding unproved views. He clamors insistently for credit. What he aims at is to attract attention. He would rather be abused than not spoken about at all. He has noticed the fact that a plain, modest, hardwork-

ing man, doing his duty and serving humanity, attracts no more real attention than a thermometer on a balmy day. It is a sad commentary on the world that bowlegs attract more attention than great virtues, and that a red nose causes more comment than a blameless life.

A surgeon is like a postage stamp. He is useless when stuck on himself. A vain surgeon is like a milking stool; of no use except when sat upon. I don't see how any real surgeon can be vain. He is too often near to the inscrutable mystery of death—he sees too often the weaknesses of men—he too often stands at cross roads of judgment, knows that one way is the wrong way, but finds no sign to mark it—he too often has to reproach himself for mistakes—he too often sees calamity tread on the heels of calamity—he too often laments, impotent to save, and watches "Beauty and anguish walking hand and hand, the downward way to death"—he knows too well that Sophocles spoke the truth when he said—

The power of learning may a while prevail,
A time prolong a mortal's fleeting breath,
But useless all her arts are to avail
To conquer Fate or check the hand of Death.

I don't see how any surgeon can be vain any more than I can see how an astronomer could be vain—an astronomer who peers into the depths of infinite space which the hand of Omnipotence has strewn thick with star dust.

Real success comes only from persistent hard work. No lily handed child of ease is entitled to it or can have it. Its insignia do not come from the general public, but are conferred by the profession itself. Any temperament which keeps a man from sticking at it forbids success. Mere episodes of busy idleness do not constitute work. The loafer is a failure. To loaf in front of a church is just the same as to loaf in front of a saloon. One may loaf in a library, a laboratory, a hospital, as well as on a street corner, in a bar room, or at an afternoon tea. Indolence sterilizes the mind, but work will not create genius. It is an infinitely rare gift to dream the fairy tales of science. Genius alone dreams them, but even genius must work to make them real. I believe that real success can come only from work, but I know that even the hardest work may not command it. "'Tis not in mortals to *command* success." Some work wrong and fail. Some work right and fail. Some work but fail "until they grasp the skirt of happy chance," by which they are dragged to the openings they lacked and the opportunities they despaired of obtaining. No man could dive for pearls on a mountain; no man could become an astronomer in a cave, and it may be impossible to create opportunity.

I know that opportunity was opened to me directly by the kindly act of one great man. I have received recognition and reward, beyond my merits it is true, but I should have received neither without him. I was breasting the waves of circumstance and my strength was failing with every stroke. Whenever I tried to grasp the gunwale of a boat, some one hit my knuckles with a boat hook and my hold was loosened. A strong hand reached out, grasped me by the hair, and dragged me, all but drowned, from the waters. It was the hand of my

dear old chief and master, Professor W. W. Keen. So, you see, I am forced to believe in the lucky chance.

When we think of how many men fail, we naturally wish there was some infallible method by which we might recognize the unfit when they seek to begin study or at least very early in their student days, so that we might turn them back from medicine. To do so would be good for medicine and good for the men themselves. Unfortunately such men are not labeled like reserved seats, or brandy bottles, or boxes of cigars. To make a mistake and admit the unfit man, would wrong medicine and the man. To make a mistake and exclude the fit man, would wrong the man and medicine. A trouble in handling such men is a trouble in eugenics, viz., Who is to do the deciding, and, when you select the judges, what proof is there that they are competent? Certain it is that mere examination marks can't enable any one to make a just and reasonable decision. The world has a mania for examination tests. In Philadelphia, the city subjects even the scrub women to examinations. Some of the questions asked by civil service boards must have been conceived in the incurable ward of a lunatic asylum. The same is true of medical examinations. They are not tests of the man. They are only tests of his memory for facts. They tell us nothing of his judgment, tact, energy, enthusiasm, idealism, reason, observation, temperament, disposition, honesty, loyalty, courage, truthfulness, or intelligence. Memory for facts means little. The other things mean nearly all. The graduate is like a sausage—that is, he is whatever comes out of the machine. I admit that the purity, flavor, and healthfulness of the sausage depend upon what goes into the machine. Seasoning won't do everything, although some teachers agree with Sam Weller's friend, the meat pie man, who said it was all in the seasoning.

It is to be earnestly hoped that some great genius will discover a method by which the schools can tell if the germs of success are in a man or if he is hopelessly immune and ordained to failure. Oh, for some x ray which would show us in the human the glass from the diamond, the plate from the gold! Oh, for some test to show what is presented to be made into the sausage! How many men out of a class become surgeons? Many men will become occasional operators, practising surgery and internal medicine. Very few, indeed, will become pure surgical specialists. In Philadelphia, at the present moment, I can count on my fingers the men who are pure surgical specialists—count them on my fingers and perhaps have a finger or two to spare. I suppose the same thing is true in other cities. No man should start out as a pure surgeon. He should be just as unable to do this as Wilkins Micawber, Jr., was unable to proclaim himself a barrister. Every man ought to do several or a number of years' general practice before he limits himself to surgery. He must have the broad training that only general practice can give. Every day he works and studies in surgery, but he studies and practises general medicine as well. He works at surgery in a hospital. He helps an older man in operations. He could not live on surgery alone at this stage. He must make the rent and board from general practice.

A training in general medicine broadens a man immensely; increases his diagnostic acumen, his therapeutic skill, his prognostic ability; his knowledge of diet, of hygiene, and of the control and management of patients and their families. It takes years of training to equip a man to follow surgery as a specialty. If a man tries to start out as a surgical authority, he never learns the rudiments throughout all of his days. During the war between the States, a number of politicians were made generals. One of these generals made a dreadful failure and was fiercely criticized. General Grant said, "Don't be too hard on the poor fellow—he could not help it. Remember he started life as a brigadier general." A man can't start professional life as a hospital surgeon and a professor of surgery any more safely than he can start military life as a brigadier general. Of course, when a man has become really equipped and desires to follow a surgical career, he ought to abandon general practice. He simply cannot keep himself properly informed in both branches.

Why do men become surgeons? Very few because of an early natural inclination, though some do. Ambrose Paré, when twelve years of age, decided to become a master surgeon because he was profoundly attracted by the usefulness and helpfulness of the art. Alfred Velpeau, when a mere child, determined on seeking a surgical career. The elder Gross, when only six years old, aspired to be a surgeon and could never tell what gave him the desire. But such instances are very rare. Most men have become surgeons because of a developed liking for it, because of some particular opportunity or of some chance which stirred the idea. Often a son will adopt the father's specialty, as did the younger Gross, the younger Pancoast, and the younger Kocher.

Some great surgeons did not lean to surgery at all. Sir William Fergusson began the study of law, but abandoned it. Robert Liston wished to be a sailor. Sir James Paget had an inclination toward botany. Syme was infatuated with chemistry. Simpson had, as a student, a horror of surgery. Sir Benjamin Brodie had no special liking for it. The great John Hunter was a mischievous lad and a ne'er do well and he was sent up to London to see if his brother William, the anatomist and obstetrician, could make something or anything out of him.

Most medical students are attracted to surgery. Its positive results please them. The bloody drama of the operation fascinates them, the dramatic force of some great operator stirs their admiration. They note decisive achievements and wonderful successes. They hear little of failures. They know nothing of the haunting anxieties, the keen disappointments, the baffling perplexities, the dread responsibilities, and the numerous self reproaches of one who spends his life as an operating surgeon. Yet few even of these admiring students become surgeons. Some suffer disenchantment during their student days. Many lack the necessary qualities. Many shrink from the responsibility. Some never get an opportunity. Many find an opening in general practice and seize it for a livelihood. The very best minds in a class seldom lean to surgery. This is a sad admission, but it is true. Men with deep,

broad, philosophic minds usually tend to laboratory science and experimental medicine. That such minds are apt to be repelled by surgery is often the fault of a teacher. No mere knifeman can command their admiration and respect. If the teacher is what Bob Sawyer's landlady, Mrs. Raddle, held all surgeons to be, only "a cutter and carver" of "live people's bodies," he can never attract the best intellects of the class. No mere operator can do it, no factory of dramatic flourishes, no phrase maker, no exponent of surgery by epigram, or surgery by aphorism, no one ignorant of the other branches of medicine, of medical history, of surgical physiology, of experimental surgery, of bacteriology, of diagnosis, of prognosis, and of the natural history of disease. One of the highest problems of a teacher of surgery is how to save to the great practical branch of surgery intellects some of which might be of more use to humanity among the patients in a hospital than among the test tubes in a laboratory.

Years ago I heard a medical student say that he was going into surgery because of the chance it gave to make great fees and get rich rapidly. I don't know what became of that youth. I have lost track of him. I never see his name to a surgical article in a medical journal. He may be so busy making great fees that he has no time to write, but I doubt it. I would venture a considerable wager that that mercenary gentleman has long since discovered his huge mistake.

The ideas held by the public regarding surgeons' fees are ludicrous exaggerations. The man who is going after surgical fees as a buccaneer goes after a laden galleon should fly the black flag of piracy in Wall Street. He doesn't belong in surgery and won't succeed there. A man who regards the dollar mark as the flowing curve of faultless beauty doesn't belong among us. A man who is ever looking into the beautiful eyes of his cash box will receive, if he is a surgeon, few dazzling glances in return. An able man who spends the same amount of preparation, thought, study, toil, anxiety, observation, in any one of twenty other callings can obtain more than twenty times the reward he can in surgery.

Here and there throughout the country there are to be found men who make huge incomes, but such men are rare. When we find one of them we may find a great surgical genius. We may find a man who combines business ability with surgical ability. We may find one of preeminent repute in a special line of work. We may find one who has organized his business as efficiently as a department store. We may find one who has the good fortune to command cases from over a vast area of country. We very seldom find a surgical Croesus.

I do not believe there is a surgeon in Philadelphia who makes more than \$50,000 a year. I do not believe that more than two make nearly that much. Large fees are the exception. Small fees or no fees are the rule. The largest fee ever received by the elder Gross, the undisputed head of American surgery, was \$2,500. Every surgeon, even the most successful one, makes most of his income from small fees.

Year by year the incomes of most purely surgical

specialists who practise in the large cities, shrink. This is an inevitable outcome of the establishment of hospitals in all the smaller towns. A few years ago every one with a surgical trouble went to a large city for advice and, if operation was needed, for operation. Now, comparatively few go. They stay at home, and are operated on in the neighborhood hospital. Year by year fewer and fewer surgical patients come from a distance to this city. This is the reason why there are so few pure surgical specialists. There is not enough work to go around. I am not arguing now for or against the hospitals in the small towns. The question as to how they are fulfilling their function is not, on the present occasion, up for dispute. I am simply stating the fact that because of them surgery in a city will seldom make a man rich.

A man does not have much time to make money in surgery and he is seldom a good enough business man to do nearly as well as he could. He spends years of breaking work and cruel anxiety to fit himself to be a surgeon. He is usually in the forties before he obtains a remunerative practice. Few are prosperous at twenty-five as were Liston, Syne, and the first McClellan, or at thirty-two, as was Fergusson. Paget was in practice ten years before he obtained a fee for a private operation. Agnew was in the fifties before he had attained reasonable prosperity.

A surgeon can continue to operate only so long as his hand is steady and his eye keen. Hand and eye are apt to fail in the sixties. As a rule, at the best, a surgeon has only twenty-five years in which to make and lay by enough to provide for his old age and for the decent support of his family after his death. At any time during those twenty-five years a man's usefulness may be destroyed by inoculation with a disease or by a crippling injury of the hand. Thirty years ago, one of the most promising men in Philadelphia was inoculated with syphilis while doing an operation. He became a shattered wreck, went totally blind, and died in a few years. Shortly afterward, a noted hospital surgeon became inoculated with the same disease and at once and permanently gave up practice for fear that he might inoculate his patients.

The period for remunerative work in operative surgery is probably shorter and more beset with perils than in any other profession. The soldier and sailor must stop at sixty-two years, but the government supports them for the balance of their lives. The civil engineer, the mechanical engineer, the electrical engineer, the chemist, can keep on indefinitely. The medical man can continue as a consultant as long as he can get about, and we have it on the authority of Oliver Wendell Holmes, that many people "like their doctors mouldy like their cheese." When the clergyman grows more and more prosy, doctrinal, and orthodox, he takes a colleague and prosed on. When a lawyer is about fit to be put on the shelf, he is put on the bench instead. But when the operating surgeon begins to fail, he has to stop. A man who is something more than a mere operator can perhaps continue as a pure consultant, but the pure operator is done and is done forever.

It is evident that during his period of activity

and opportunity a surgeon must charge fair fees to those who can afford to pay them. A failure to do so will mean an old age of privation and a family left in want. The time during which a surgeon can charge large fees is brief. Very few people are able to pay large fees. Very few of those who are able to do so are willing. The surprise of a professional philanthropist when asked to make a personal contribution, the obstinacy of a government mule confronting a stream which must be forded, the indignation of a reformer when forced to be specific and to keep his promises, the wrath of a politician on discovering an impending split in the party, the horror of a superstitious colored man upon seeing a ghost in a graveyard, when all combined do not quite serve to represent the state of mind of the average millionaire when presented with a fair bill for having had his life saved by surgery, I think that a consideration of these facts should convince any impartial mind that surgery is a poor field from which to glean a harvest of wealth.

A surgeon's life is a very hard one. It is a life of endless strain. During most of the hours of every day his faculties are keyed up tense almost to the breaking point, and physical tire goes hand in hand with mental exhaustion. He must carry and carry naturally the heaviest responsibilities. No matter how tired he is, his faculties must be alert, his judgment clear, his will inflexible, his knowledge accurate and instantaneously accessible for transmission into action. He must be calm, no matter what the clamor, the peril, the perplexity. Of course he will worry about his patients. Every conscientious man must do so. A man who doesn't worry at all doesn't care a whole lot. I should not want a man who did not care a whole lot operating on me or mine. Perhaps worry is a device of nature to make us try to do our very best. If we knew we should not worry, we might be tempted at times to be careless. If a surgeon analyzes his worry he can get a line on what sort of man he is himself. If he worries only because he fears he may be sued, may lose a bill, or may hurt his reputation, then with him the voice of conscience is the fear of getting caught. If he worries because of the poor patient and the credit of surgery, then he is a really conscientious man. He must expect much harsh and unjust criticism, and when he is the victim of it all he can do is follow Joseph Pancoast's advice and make his shoulders broad enough to bear the burden. A surgeon must learn thorough self surrender and all his life must wear the iron yoke of duty.

Yes! the life of a surgeon is toilsome, responsible, and anxious. It is a life of stress and strain. It is small wonder that surgeons as a class are not long lived. Pneumonia, angina pectoris, Bright's disease, vascular disease are the commonest agents of dissolution. The life is full of tragedy. Sometimes it seems as though a malign destiny were intervening in our affairs. This so impressed Velpeau that he came to believe in the rule of three. It so influenced Pirogoff that he wrote an essay on *Luck in Surgery*.

The days of waiting for practice are very hard and very dangerous. Those days may make a man or mar him. The same wind which blows out the penny dip urges the flames of the forest fire. Those days go far in determining what sort of a man he is

and is to be. During them he should study ceaselessly, learn to work, to observe, to think, and to teach himself. He should ponder deeply and often on the responsibilities and the duties of his calling. Thus he should become a real man, an individual, a man with genuine ideas, definite beliefs, established principles, and high ideals. Thus he should avoid being a mere mimic and echo.

There is grave danger in those waiting hours, those dark hours of poverty and nonrecognition. A sensitive soul will shrink, falter, and probably fail. Brooding discontent is apt to dominate and it is a deadly peril. Jealousy may spring up, envy may attain rank luxuriance, bitterness may grow, selfishness, avarice, disloyalty, mental dishonesty may be planted. Low ideals are ever knocking for admission. From them come admiration for despicable things, desires for unworthy objects, and improper professional conduct.

Gradually, as a man becomes a surgeon, he tends toward one of the two fundamental groups into which all surgeons are divisible. The mental tendencies of an individual determine to which group their possessor or victim belongs. Each type has its strengths and its weaknesses. Each may be potent for good or active for evil. The ideal surgeon has not as yet been born. He would possess the strengths of both types and the weaknesses of neither. He would have wisdom as well as knowledge—tact as well as skill—confident hope as well as cautious doubt. His hand would be as light as floating perfume—his eye as quick as a flashing sunbeam—his heart as broad as humanity—his soul as sweet as the waters of Lebanon.

One fundamental class is the conservative, the other is the radical. The conservative is often a most valuable factor in surgery. He is a brake on the wheel and often stops the dashing automobile of progress when on a joy ride, from upsetting it in the ditch of folly. He smothered the torch of the fantastic, snatches the mask from pretense, and punctures the hot air balloon of egotism. He studies the past and reverses it, likes to penetrate its cities and its silences, to repeople its mouldering ruins, and to worship at its shattered shrines, and, in the words of Macaulay, looks back upon some Golden Age that has had no existence outside of his own mind. He attaches an exaggerated importance to books, and minimizes the value of new methods of communicating ideas. He has a great respect for authorities, and would rather "sin with Pope than shine with Pye." He is prone to write ponderous treatises each of which has a name so complicated that it sounds like a sobriety test. He is apt to regard present day claims through the dim sublimation of the foggy and remote. He regards each so called new thing as a wrong basely done to the established order and agrees with Solomon that there is no new thing. He is very doubtful of the possibility of reforming anything or anybody. He follows custom even when it is unreasonable or actually absurd. His headlight, like the light of the glow worm, is on the wrong end. He progresses, but in a circle, like the hands of a clock. He is not the active minded man behind the gun, but the slow and often dull man behind the times. His ideas are from a reservoir and not from a spring. Such conservatism may

be temperamental opposition to change, may be a mask for incapacity, or an excuse for laziness. He may block or drag back the auto of progress even when it is moving surely, in the right direction and on the right road. He is apt to be a pessimist—seeing the thorns and not the roses—seeing the hole in the doughnut, but not the doughnut.

The best and most useful conservative is one who has had the radicalism of youth and inexperience corrected by age and experience. He is cautious of accepting new things, but can be brought to believe them. He leans to traditional notions, but may be divorced from them after showing him the conduct of the correspondent Error. He will make no successes which will shake the world, but he will make few irremediable blunders. In trying conscientiously to reach decisions, he will often be plunged neck deep in a barrel of quandary. He will be a careful and successful, but not a brilliant or notably rapid operator. He will probably be respected, learned, and prosperous.

A conservative man, when he looks through the spectacles of conservatism, will see common things with the greatest clearness and will come to know them with absolute certainty, but he will be unable to recognize the Good Fairy coming in the loathsome disguise of a Discovery.

Our most splendid triumphs, our worst mistakes, and our saddest failures come from the radical mind. It is a spring and not a reservoir. It is voice and not an echo. In the radical group are the original thinkers, the investigators, the discoverers, the combative spirits who "fight like raging devils for conciliation and hate each other for the love of God." The real radical believes a new statement because it is new, and doubts an old view because it is old. He blazes the way for lesser minds, but is always in danger of being lost in the jungle. His feet may be in the muck heap, but his head is among the stars of space. He is a dreamer of dreams. If he were to lose a leg, he would congratulate himself that he now had but one foot to keep warm. He habitually ignores the reasonably probable and revels in the doubtfully possible. His ideals are broad, expansive, on a great scale. He is ever seeking to make converts. He has an utter contempt for authority. He jumps to conclusions and may make the champion long distance leap from the frying pan into the fire. He has fierce controversies, devises operations, founds hypotheses, launches theories, discovers diseases, and dazzles all who know him with brilliant flights and amazing activities. As an operator he is brilliant, relying upon skill more than judgment, taking desperate chances, and skimming almost gaily within a hair's breadth of the deadliest catastrophes. He needs to have ever on duty by his side a peculiarly attentive guardian angel. He is never moderate, in fact he scorns moderation. He is invariably convinced that he is always right. He will not brook contradiction and regards his opponents as instigated by the worst possible motives. His knife may cut for good or ill. He obtains wonderful successes and makes dreadful mistakes. He is often a copious and hasty writer, rather prone to recording things as certain long before they are proved. He loudly claims credit he thinks his due. He rides the Rosinante of a hobby as though it were a splendid

charger. He often fails to reach his goal and like a squirrel in a cage, rises only to fall.

The best type of the radical makes the real progress of humanity. Such a great man is a most attractive personality. He may die poor, through adhering to some ideal. He may happen to become the fashion and get rich.

Unscrupulous and shallow impostors, who are good actors, are apt to pretend to be the best type of radical. Such a man never had a burning faith, never saw a vision, never had a dream which could not be turned into cash. He does not know a penny dip from a constellation of profundity, or a note on the golden trump of fame from a shriek on the penny whistle of notoriety. He tries to attract by cleverness and dexterity in order that he may become conspicuous and rich. He sends forth articles as bread upon the sea of medical journalism in hope that it will return to him as buttered toast. He flies toward notoriety as a bee to a buckwheat patch or a politician to a "divvy." He knows it all and consequently knows a lot of things which are not true. He appropriates the ideas of other persons and calmly puts them forth as his own, being as much at home in the stolen mansion as a hermit crab is in an appropriated cockle shell. He was born a lucifer match, but thinks he is an electric light. He can put a slender idea into more words than Newton used in his *Principia*, and even if he doesn't stretch the truth, he is likely seriously to twist it. His great hope is cash. If he attended a drowned man he would first of all go through the victim's pockets. He has the income of a taxicab driver or an evangelist. Next to cash (in the words of Doctor Holmes), his hope is to have an instrument, a method, or a disease named after him, in order that it may be fastened to him, and that the combination may go scuttling through the journals and books like a dog with a tin can tied to his tail.

Whether a surgeon is rich or poor, noted or obscure, conservative or radical, he has his trials and his triumphs. Many of his trials I have already alluded to. A man has few things harder to bear, until he has become well accustomed to it, than to be conscious of ability, integrity, and worth, and see the ignorant pretender, the fakir, the solemn ass, or the charlatan preferred in his stead. He may find comfort in the well known story of John Abernethy (which I paraphrase). Abernethy, accosting a rich and famous quack, said: "Sir, you are no surgeon. You swindle the public. You deceive your patients. You are totally ignorant and utterly unscrupulous, and yet, you live in a palace, ride in a chariot, and actually smell of wealth. I, John Abernethy, surgeon of London, an operator, a student, an author, I, who strive to be an honest and conscientious man, must live in a humble abode, must walk my rounds, and only by the hardest work do I make a bare living. Why are these things?" The quack said: "Mr. Abernethy, yonder is London Bridge, how many people think you, cross it in a day?" and the surgeon answered, "I do not know, perhaps a hundred thousand." The quack responded, "And how many of them are fools? You, Mr. Abernethy, attend the wise men; I attend the fools."

One of the bitterest of bitter things is to find a truth and see our contemporaries neglect or re-

pudiate it. This has often happened. In 1827, Méliér, a young intern in a Paris hospital, expressed the belief that inflammation in the right iliac fossa depended on disease of the appendix. He reported cases of undoubted appendicitis verified by autopsy. He described gangrene, perforation, concretions, and peritonitis. He sought to make it possible to diagnose inflammation of the appendix, and believed that if the diagnosis could be made, operation was demanded. The great Dupuytren arose and destroyed the young surgeon. For over half a century the profession followed Dupuytren, who was wrong, and rejected Méliér, who was right, and scores of thousands died when they might have been saved. Think of the feelings of the man who had the truth. What became of him I do not know. He was no more heard of in surgery. He probably went into obscurity, the victim of a broken heart.

The death of a patient after an operation is always hard to bear. It is particularly hard to bear if unexpected. Did any one of you ever have a patient die from an anesthetic? I did. It was horrible. Such an event will shake the strongest man. Sometimes a patient appeals to us so that his death comes as a personal grief to the surgeon. A child often makes such an appeal to us.

I remember the venerable elder Gross. He operated for stone in the bladder upon a beautiful golden haired boy. The next day he was walking along the hall of the hospital with bowed head and stern, set face. Someone went up to him and said, "Professor Gross, how is that pretty child you operated on yesterday?" Doctor Gross answered, almost fiercely, "that child is dying and I wish to God I'd never been a surgeon."

When death comes in spite of our best efforts, we are often dreadfully blamed and most unjustly criticized. A patient was shot in the abdomen. The bullet lacerated the spleen. I removed the spleen, but did not find the bullet. The patient died. A coroner's physician made such strictures upon my conduct in not finding the bullet that I had the narrowest escape from a law suit, yet I was absolutely right and the coroner's physician was an ignorant fool. It is very hard to bear. One cannot answer back. Yet even dignified reserve is often regarded as acknowledgment of our alleged mistakes. I have been criticized in some cases for which I deserved credit, but, conversely, I have also been praised when I did not deserve it, so perhaps it is as broad as it is long. Few things make me more unhappy than ingratitude—ingratitude of patients I have really served, ingratitude of assistants I have really helped. I have had my share from both sources. I do not wonder that poor, old, stricken Lear called ingratitude a "marble hearted fiend," or that Milton spoke of it as "base" and "besotted."

But there are splendid compensations in surgery. Think of the mighty helpfulness of it—of how many it saves otherwise hopelessly lost—of how many it frees from loathsome disease, from racking torture, from cruel deformity. Think of its certainty, its quickness, its decisiveness, of the numerous sciences and infinite details all marshalled to aid us, and all put at our disposal.

It is a triumph to complete successfully a difficult and dangerous operation and know that we have

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done the best by the patient. It is a triumph to meet and master obstacles. It is a triumph and a splendid one to save a life by surgery. A man who has long practised surgery and practised it well has a right to feel that he has not lived in vain, but has done good to his fellow men.

It is a proud moment when a surgeon faces some sudden peril or some unexpected difficulty and finds a way out of it that he knows will be of service to others—when he improves an operation—when he adds to the knowledge of diagnosis or treatment—when he contributes points to technic which make operating safer.

Years ago, when I first became Professor Keen's assistant (and never again shall I have so proud a title), I was immensely impressed with the usefulness of surgery. An old sea captain was suffering the agonies of hell from *tic douloureux*. Peripheral operations had been done in vain. As I gave him the ether he begged me over and over again, if Doctor Keen did not succeed in doing what he hoped, to kill him with ether. He said, "if you let me wake up to this awful pain I will first curse you and then kill myself." Doctor Keen removed the Gasserian ganglion and the man got well and lived for years tranquil, happy, and very grateful.

I once saw an important surgical principle evolved at the operation table. Doctor Keen was operating for chronic empyema. In those days we did not go farther than the removal of considerable pieces from several ribs. We found the lung shrunk up, and the parietal pleura nearly an inch thick. Doctor Keen said, "removal of pieces of rib won't cure this man. We must let his chest wall fall in. It can't fall in unless we practise extensive rib resection and remove that thickened pleura." He removed the ribs from the second to the ninth inclusive, removing them from their angles to their cartilages, removed the thickened parietal pleura, and let the soft parts drop in against the lung. The patient recovered, married his nurse, and had a child he named after Doctor Keen. That operation was what we now call Schede's operation. Just as Doctor Keen was about to publish it, he saw in a journal the paper of Schede, of Hamburg, who first published his results about six months after Keen's operation. Keen had never heard of Schede's work and evolved the exact principle that Schede had done.

There is a keen delight, a luxury of feeling, a sense of triumph, on finding we have succeeded in an operation. I once saw in the Louvre a small picture which impressed me mightily. It represented King Charles X of France and Dupuytren in the hospital. The surgeon had just removed the bandage from a patient on whom he had operated for cataract. The patient's hands were raised up as in gratitude to God, as he cried out, "I see."

I have witnessed that very thing in the ophthalmological clinic. Whenever I see it, I feel a curious gripping at the throat and quiver of the heart. It has an unequalled dramatic intensity. Could anything be finer than to restore sight? I always envy the ophthalmologist that well earned triumph and take off my hat to him in admiration.

Think of the triumph of Marion Sims when for the first time in surgical history, a vesicovaginal fistula was cured—of Carrel when he succeeded in

grafting viscera and anastomosing arteries—of Cushing when he saved a newborn victim of cerebral hemorrhage—of McDowell when he did ovariectomy—of Broca when he located the lesion of aphasia—of Walter Brashear when he successfully amputated at the hip joint—of Crile when he proved the value of, and showed the method of transfusion—of Murphy when he succeeded in curing ankylosis—of Bigelow when he devised litholopaxy—of Kocher when he perfected the operation for goitre—of Matas when he performed endoaneurysmorrhaphy—of Hunter when he tied the femoral artery for popliteal aneurysm instead of amputating through the thigh—of Jacobson when he restored trephining to its proper place in the treatment of traumatism of the head—of Crawford, Long, and Morton when they first used ether—of Simpson when he first used chloroform—of Halsted when he had completed the methods of his operation for malignant disease of the mammary gland—of Sir William Macewen when he removed the first brain tumor ever operated upon. The list of such triumphs might be indefinitely added to. The history of surgery is strewn with them.

It is given to few to be Columbuses of great continents of surgery—given to but few to discover such a principle as antiseptics as did Lord Lister—but all of us have at times our small triumphs, all of us are workers in the cause and all of us add something to knowledge.

During my nearly thirty years of membership in the medical profession many truths have crystallized in my mind, some as apothegms, some as aphorisms, some as epigrams. I will cite a few of them.

1. A trial, often a severe trial to the surgeon, is the lawyer. Plato said he had seen in the courts "men keen and shrewd, and skilled in the use of words, with dwarfed and grovelling souls, deprived of mental enlargement, uprightness, and independence."

Milton spoke of "men allured to the *trade* of law, who ground their purposes, not on the prudent and heavenly contemplation of justice and equity, but on the promising and pleasing thoughts of litigious terms, fat contentions, and flowing fees."

I fancy you need no mental effort to catch my drift.

Lawyers sue us on the slightest provocation—put us under subpoena even when we know nothing of the case on trial—cross examine us with scorn and with a morbid interest in authorities and in our private affairs, and combat us when we try to collect a proper fee from a reluctant millionaire.

It is only just to say that lawyers collect accounts for us, defend us when we are in trouble, and give us good advice, if they first receive retaining fees. Now and then a judge moderates the extravagances of a bitter cross examination, but as a rule he pays no attention to it and sits in dignified isolation from all mundane cares, duties, and responsibilities. Every now and then I see a judge on the bench who reminds me of a fly in amber. I know he is there, but I can't imagine how he got there.

2. The lawyer's denunciations of medical experts is often just. They do disagree—in fact sometimes they disagree like the supreme court. Many a one answers to Mark Twain's description of Fenimore Cooper "and deals freely in important omissions."

Some present the naked truth, but many prefer to go no further than the truth décolleté. Every now and then an expert witness is found to possess one of those well trained memories which is able to remember everything advantageous and nothing harmful to that side of the case. Some medical experts cheerfully swear to things they would not bet on.

3. It is the solemn and imperative duty of a surgeon to give to able and worthy young men a chance to become surgeons. He should train them—weed out the unfit—stimulate and encourage the fit—stand by them till they can go it alone. Next to a good name there is no heritage I would so like to leave as a group of fine young surgeons to whom I had had the good fortune to open the doors of opportunity. Think of the benefit to humanity of such a heritage. Think of those men remembering the man who helped them with enduring affection. Could anything be finer? I venture to say that Professor Halsted is as proud of nothing in his distinguished career as of that splendid group of brilliant men he trained and started on the road to eminence.

A surgeon who deliberately fails to train young men is guilty of a crime against humanity. A hospital management which makes a surgeon fail in this duty is criminal.

4. In some hospitals there is a certain evil tendency. Now it slumbers—now it turns uneasily in sleep dreaming of power—now it wakes to harmful deeds. Now it fastens upon an institution as the Old Man of the Sea fastened upon the neck of Sinbad the Sailor. That evil tendency may be called "the system." All of you who have read of the murder of Rosenthal the gambler, know what the system was in the New York police force. The system in a hospital is the same sort of thing to a less degree. It means that certain medical men improperly and unjustly acquire supreme power and use that power for selfish interests and not for the public welfare. In an institution in which the system is in full sway, some of the staff get more than they deserve and most less than they need. Those who speak the truth are regarded with fear and aversion. Abuses accumulate. Ignorant neglect is tolerated in some, the best effort is censured in others. There is an outward appearance of the highest efficiency, when in reality the institution is a whitened sepulchre. No man is appointed to the staff purely for fitness, but personal reasons sway the result. On one side we see the suffering poor, on the other the foul and loathsome rule of the system. Everything is passed to the man higher up. If I had my way, I'd strike that thrice accursed system dead.

5. I have noticed a tendency on the part of an occasional elderly and distinguished man to think that the rules of medical ethics were meant for young fellows just starting out, but not for him.

6. Sometimes a man tells the truth out of pure meanness.

7. A man who has a theory which he tries to fit to facts, is like a drunkard who tries his key haphazard in door after door, hoping to find one it fits.

8. The way of the medical transgressor who violates the obligations due his fellow practitioners, is sometimes as hard as the way of the thoroughly

decent and honorable man usually is. The good man knows that man wants but little here below, and that's what he usually gets.

9. Many a man who is brooding over alleged mighty discoveries reminds me of a hen sitting on billiard balls.

10. One of the never mentioned causes of all the proclamations about higher medical education, is the secret conviction that there are too many doctors and too little money in circulation.

11. A fashionable surgeon, like a pelican, can be recognized by the size of his bill.

12. When a man finds his "idea" doesn't appeal to the tired and indifferent world, he is apt to speak to posterity. I heard a man do this once and before he finished he almost had his audience there.

13. Diagnosis by intuition is a rapid method of reaching a wrong conclusion.

14. Some people get credit for using a big word instead of a shorter one, yet every now and then a synonym is used because we forget how to spell the word we want to use.

15. Now and then a very learned article or lecture, like the talk of the man mentioned in Wolfville, increases the sum total of human ignorance.

16. The Master of Trinity is correct; "none of us is infallible, not even the youngest of us."

17. Many young men, laboriously climbing the ladder of Fame, get knocked off by older men engaged in coming down. Sometimes a man who thinks he is on a treadmill is really on the ladder of Fame and *vice versa*.

18. Some who approach the summit don't stay there long. They can't stand the altitude.

19. A patient who says he must borrow the money to pay you, *will* borrow the money, but *won't* pay you. He will rob Peter to pay Paul and will cheat Paul.

20. It is not enough for a surgeon to have "go"; he must also have "stay."

21. Each one of us, however old, is still an undergraduate in the school of experience. When a man thinks he has graduated he becomes a public menace.

22. A surgeon is often and easily misunderstood. People always draw the worst possible inferences. What would certainly be said of a scientist who, in a moment of abstraction, tried to blow the froth off of a charlotte russe?

23. It is said that the good die young. I am not sure of this, but I am quite sure that only the young die good. If the good do not die young, they will grow up to be as lonely as a moralist on the police force.

24. Sometimes cowardice, sometimes laziness, sometimes selfishness saves a man from being called irritable, combative, and cantankerous. What a man doesn't do is not always a sign of what he is and isn't. We must know why he doesn't do it in order to reach a conclusion.

25. A man who pays his surgeon many gleaming compliments, seldom pays him anything else.

26. The world is very small if we would avoid an enemy—huge if we would find a friend.

27. The public has an idea that a consultation is a meeting of accomplices.

28. A surgeon is worried about the past, anxious about the future, or up to his neck in present trouble. Often he suffers from the three inflictions

at once and then feels as if he had taken a boil, rheumatism, and religion at the same time.

29. We waste much time blushing for the evil things done by our friends. In fact the wisdom of some surgeons consists in knowing with certainty what other surgeons should or should not have done.

30. Appearances are deceptive. I knew a man who acquired a reputation for dignity because he had muscular rheumatism in the neck and back.

31. Sometimes when a doctor gets too lazy to work, he becomes a politician.

32. One man and one only should be in charge of a case. Other physicians may be assistants or consultants. Two men in charge is a surgical duet and like a musical duet is an arrangement by which each one may lay the blame on the other.

33. It won't help a young man much to be 100 years ahead of his time, if he is a month behind in his rent.

34. It has been said that ignorance is bliss. If that be so the antivivisectionists must dwell in a veritable paradise.

35. Tact is a valuable attribute in gaining practice. It consists in telling a squint eyed man that he has a fine, firm chin.

36. Patients can't understand surgical technicalities, but they want to be told them. When patients insist on learning in detail the reason why, one often feels like answering them as the negro preacher answered a number of neophytes awaiting baptism: "Now, my breddern, you all want to know what's de reason dat immursion is de only mode of baptism. Well now, my breddern, bless de Lord, taint none o' yoah damned business."

37. The longer a person practises surgery, the more shy he becomes of venturing predictions and the more he respects Lowell's advice—"don't prophesy unless you know." Great ingenuity is often employed in avoiding the explicit. A patient approached a dear old chief of mine and insisted on specific statements as to the future of his sick son. The grizzled old professor said: "If your son gets well he will get about again. If he does not, he will not. If the balance of events shall remain equal, then he will remain in a state of status quo." I take it there has been no opinion equal to this since the immortal opinion of Jack Bunsby of the Cautious Clara. Strange to say, the man was entirely satisfied. He had seen the professor and had obtained his information from the highest source.

38. There is a splendid chance to do good in surgery, especially if you don't care who gets the credit.

39. It may rain upon the just as well as upon the unjust, but when it does the unjust usually have the umbrellas of the just.

40. To write an article of any sort is, to some extent, to reveal ourselves. Hence, even a medical article is, in a sense, something of an autobiography.

41. When I read some statistics I wish it was the law that statistics could be written only in the shade of the Peepul tree. You know it is the tradition in India that in the shade of that tree only truth can be told. To tell a lie kills the liar.

42. There are fashions in surgery just as there are in morals, millinery, religion, and war boats. They are just as transitory and often just as bizarre.

43. To tell a surgeon he reminds you of another

surgeon is apt to offend two people. No genuinely able man ever consciously imitated anybody. Every real man is an individual and has his own personality.

44. There are two ways to injure the repute of surgery. One way is to slander it. Another and worse way is to exploit it purely for profit.

45. What we call experience is often a dreadful list of ghastly mistakes.

46. A genius for personal detraction is not a desirable attribute in a surgical brother.

47. Many patients are as oblivious to all sense of gratitude as a stone stag to a vote of condolence.

48. As one mounts in years he is apt to specialize less and less upon the purely ideal.

49. Some men don't try to leave footprints on the sands of time nearly as hard as they try to cover up their tracks and to avoid leaving finger prints in the central station.

50. The first patient I ever had stole my only umbrella. In those days I regarded my sign as a coffin plate on a stillborn business.

51. The spirit of the times is a cruel tyrant. One may fail to conform to it because of ignorance or laziness. Only the brave, honest, unselfish man dares knowingly to defy it.

52. In surgical operations some people do not know enough to be afraid. The position is like that of the little girl who went up in the flying machine and was not afraid.

53. The less a man knows about the cause of the disease and the exact condition of affairs, the more apt he is to tell the family all about it. Once the mother of a patient of Sir William Gull's said, "you do not tell me anything definite, are there any doctors who will?" and Sir William Gull answered, "yes, there are lots of them who are ignorant enough to tell you all about it."

54. Many times, when operating, the highest wisdom is to stop. The same rule ought to apply to a surgeon's address and I shall therefore proceed to amputate my remarks.

We are all brothers, marching shoulder to shoulder in the army of healing. We have the same banner, the same bugle calls, the same hopes and aspirations. We follow as the pillar of smoke by day and the pillar of fire by night, two objects—the mitigation of human suffering and the prolongation of human life.

A like spirit is in all true surgeons. It was with Paré when he invented the ligature. It was with Larrey when he civilized warfare. It was in the lion heart of Abernethy. It filled the lordly soul of Hunter. It guided the scalpel of Agnew. It illumined the splendid intellect of Gross. The spirit which instigates, dominates, inspires, ay, and sanctifies—the magnificent science of modern surgery.

In the preceding remarks I have spoken much of the weakness and frailty of the strength and virtue of men. I have scoffed and gibed. I have praised and blamed. Yet what am I that I should judge?

In men whom men condemn as ill,
I find so much of goodness still,
In men whom men pronounce divine,
I find so much of sin and blot,
I do not dare to draw a line
Between the two, where God has not.

2045 WALNUT STREET.

THE COLLOIDAL GOLD TEST ON SPINAL FLUID; IN PARESIS AND OTHER MENTAL DISEASES.*

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The goldsol (colloidal gold) test has appeared at a time most opportune for the laboratory diagnosis of paresis. Many workers have found that occasionally one or two of the other laboratory findings, namely, pleocytosis, globulin excess, positive serum and spinal fluid Wassermann reaction, may be negative repeatedly in a very apparent case of paresis. Although such a result is unusual, and can often be corrected by repeated spaced examinations, nevertheless, the few unproved cases are sources of annoyance for the laboratory worker and tend to discredit the value of the results in the opinion of the clinician, who has been led to believe that all the above named findings should constantly be found strongly positive in this disease. Our work was started in February, 1914, after the reported discovery that paresis and other luetic nervous conditions apparently give specific reactions to the colloidal gold test.

Zsigmondy, in 1901, laid the foundation for the methods which in 1912 were applied to the examination of spinal fluid by Carl Lange (1). Solutions of colloids are known to be electrically charged. An oppositely charged electrolyte or colloid will precipitate a colloid in solution, only in definite quantitative amounts. Zsigmondy used ten c. c. of a colloidal gold solution which was precipitated by one c. c. of a ten per cent. sodium chloride solution and found that different proteins would protect or inhibit precipitation of the gold solution, until a definite dilution containing a certain amount of the protein was reached. He was able to make quantitative estimations of pure proteins and determine whether a protein was pure. Lange undertook to use the method to establish the nature of the proteins precipitated from spinal fluid by ammonium sulphate solution. In applying the test to spinal fluid, however, he obtained, in conditions where an excess of proteins was present, a precipitation and not protection of the colloidal gold in solution, in the presence of an electrolyte (sodium chloride), when the latter was too weak a solution to precipitate the gold independently. He discovered that a reaction took place with certain dilutions of the spinal fluid, in syphilis of the nervous system and in paresis, and that this reaction did not occur in the nonluetie conditions. The nature of these different reactions has not been ascertained. Lange proposes the theory that they are evidences of varying qualitative mixtures of proteins.

Technic.—All glassware must be cleansed with acid, washed with distilled water, and dried by heat, or alcohol and ether. This we have adhered to, save that test tubes were thoroughly cleansed with tap water and completely dried with gauze but not

sterilized—a procedure which has not given rise to a single flagrant error. All water for stock solutions or dilutions, must be double distilled over glass or silver, using corks which have previously been boiled for connections. Contact with rubber or other metals must be avoided. In a cleansed Jena glass beaker, 500 c. c. of double distilled water is heated gradually to 60° C., then five c. c. of one per cent. gold chloride and five c. c. of two per cent. potassium carbonate are added in rapid succession. The solution is heated quickly until the first steam bubbles arise, when five c. c. of a one per cent., forty per cent. formaldehyde solution are added and the beaker is shaken until a red solution tinged with yellow is obtained. The final solution should be clear, transparent, and devoid of blue tints. The solution will keep many months. It is best to prepare new solutions of gold chloride, potassium carbonate, and formaldehyde solution each time the indicator is made up. Double distilled water, sterilized by boiling in a clean flask and a ten per cent. solution of sodium chloride C.P. complete the stock solutions. We keep these in the ice box.

To perform the test, eleven test tubes are placed in a row in a test tube rack. A 0.4 per cent. solution of sodium chloride is made from the ten per cent. stock solution. Into the first test tube 1.8 c. c. of a 0.4 per cent. sodium chloride are placed with a five c. c. pipette and one c. c. into each of the succeeding tubes. With a one c. c. pipette graduated to the tip, 0.2 c. c. of a spinal fluid is added to the first tube, making a one to ten dilution. After thorough mixing, one c. c. is transferred to the second test tube, giving a one to twenty dilution in the second tube. This is repeated until the tenth tube is reached, which will contain a one to 5,120 solution after the final c. c. of this mixture is discarded. The last test tube becomes a control. All tubes receive five c. c. Lange's colloidal gold solution and are shaken. The readings are taken the following day or after twelve to twenty-four hours, standing at room temperature. To indicate the reaction obtained, we have used the following nomenclature:

No. 0=red—original color.

No. 1=red blue.

No. 2=blue red.

No. 3=dark blue.

No. 4=pale blue.

No. 5=complete precipitation, colorless supernatant fluid.

In our opinion, little value can be placed on the reaction before No. 3, or dark blue with absence of a red tinge, is reached. Since nearly all our fluids, obtained from insane patients, reacted in some tubes to the extent of No. 1 or No. 2, we must agree with Kaplan and McClellan (3), that a positive result must be confined to a reaction equal to or greater than No. 3 in psychiatric determinations.

Lange found that luetic fluids reacted in the first four or five tubes and gave the maximum of reaction in dilutions of one to forty, one to eighty and one to 160. A graphic representation produces a definite curve with the reaction in Lange's "luetie zone" (Table 1).

Lange and others have described a reaction found in acute meningitis and have termed it the "menin-

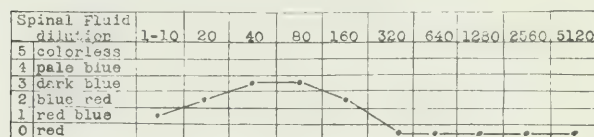
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gitic zone" or curve. The greatest reaction is seen in the higher dilutions. (Table 2.)

A more specific curve has been described by Lange and others for general paralysis of the insane. A complete precipitation is usually obtained in the first four or five tubes. Miller and Levy (2) have termed this the "paretic zone." (Table 3.)

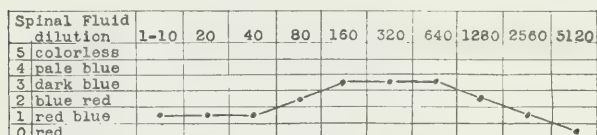
Results. Our work consists of 135 examinations on fluids from 111 patients. We undertook to ex-

TABLE 1.—LUETIC CURVE OR ZONE.



amine the spinal fluid of all available paretics and patients afflicted with cerebrospinal syphilis in the State Hospital for Insane, Norristown, Pa. The clinical diagnoses are those prescribed by Dr. Jessie M. Peterson and Dr. S. Metz Miller, chief resident physicians of the female and male departments respectively. We have not eliminated obscure cases, but have classified each in the grouping to which, after careful and prolonged consideration of the clinical aspects, each has been placed. We believe

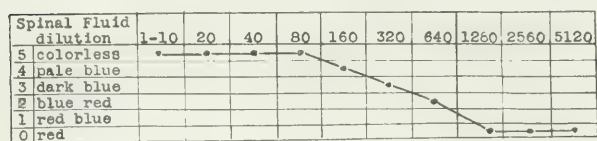
TABLE 2.—TYPE OF MENINGITIC CURVE.



that by including all cases, our percentages of positives and results will more closely correspond with that which the clinician may expect in support of his diagnoses.

The tabulated results require certain explanations. The blood serum Wassermann reaction is the strongest positive result obtained at any examination. The date indicates only the time of all spinal fluid examinations recorded. For the Wassermann reaction, the following technic is used: For the

TABLE 3.—PARETIC ZONE OR CURVE.



hemolytic system, we employ 0.5 c. c. of five per cent. solution washed sheep corpuscles, two units of high potency antishoop amboceptor, two units of complement (0.05 c. c.) each in total bulk of 0.5 c. c. Complement is titrated for each series of reactions. Patient's serum is used in 0.1 and 0.2 c. c. quantities, and spinal fluid in 0.2 and 0.4 c. c. quantities, properly controlled. No larger amount than 0.4 c. c. of spinal fluid has been used for any result recorded. As antigen, always a good alcoholic extract of beef heart has been employed, at times with other antigens. All spinal fluids and many bloods

have been examined in addition by the single unit system, namely, a single unit of corpuscles, amboceptor, and complement (0.05 c. c.) with 0.1 c. c. of serum or 0.2 c. c. spinal fluid. The result recorded is that provided by the double unit system, the weak positives of which are often made more apparent by the single unit system. The spinal fluid cell count was made by the Fuchs-Rosenthal chamber method. The globulin estimation was performed by the Noguchi butyric acid method and Ross method, using saturated ammonium sulphate solution.

Paresis. Spinal fluids from seventy patients were obtained and of this number, fifty-three gave complete reduction or a five plus reaction in the first tubes. Thus, 75.71 per cent. of the total number of paretics provided the characteristic complete reduction in the "paretic zone." Nine other cases, LIV to LXII inclusive, showed almost complete reduction of the gold or four plus reactions in the first tubes. We believe these should be included among those affording a definite positive reaction for paresis. There is but a shade of difference in the degree of the reaction, and it is possible almost to certainly render a positive laboratory diagnosis of paresis on this result in our experience. We would therefore judge our first sixty-two cases as definitely positive results and obtain thereby a percentage of 88.57. Four cases, LXIII, LXIV, LXV, LXVI, gave a single strong reaction in the first or second tube. These we would interpret as doubtful but probable cases of paresis from the laboratory standpoint in suspected cases and figure 5.71 per cent. of the whole number of paretics. If we add these to the positive cases, we might say that 94.28 per cent. of corroborative evidence of paresis was afforded to the clinical diagnosis of unselected cases by careful interpretation of the result. One could scarcely expect higher percentages in a group of paretics in all stages without selection. Kaplan (4) found a positive paretic curve in ninety-five per cent. of his cases. Miller and Levy (2) report 100 per cent. of positive reactions. Three of our cases, LXVII, LXVIII, LXIX, clinically paresis or tabetoparesis, gave only the typical luetic curve with the strongest reaction, a three or four plus, in the third, fourth or fifth tube. Nothing specific for the diagnosis of paresis can be obtained from these results, which constitute 4.28 per cent. of the whole number. Lange, in his original work, found that his paretics gave a maximum reaction of 5, 4 or 3 plus. One case, I.42 per cent, LXX, believed to be paresis of two years' duration, without physical signs of the disease, has given an absolutely negative result by the goldsol test on two examinations, also negative spinal fluid Wassermann reactions.

The most important finding in paresis, we think, is demonstrated by the result in cases which at times or repeatedly, have given a very weak positive or negative spinal fluid Wassermann reaction. Of this type are Cases VI, XIII, L, LII, LIV, LVII, LXVI, the first six of which gave typical paretic curves, the last a doubtful paretic reaction. Case LXVIII, with a weak cerebrospinal fluid Wassermann, a demented paretic or possibly cerebral syphilis, showed only the luetic curve, and Case LXX, that of a paretic without physical signs, gave negative goldsol and

cerebrospinal Wassermann. Therefore seven of nine, seventy-seven per cent., or ten per cent. of the whole number of paretics were established by the goldsol test when the cerebrospinal Wassermann had practically failed, for we regard a one plus Wassermann result of a very doubtful diagnostic value and within the limit of possible experimental error. Practically all negative or weak positive Wassermann results, both blood and spinal, in paresis, tabes, and cerebrospinal syphilis, have been verified by at least one other examination, and the same may be said of weak goldsol reactions in these con-

ditions, except as included in the tables. It might well be stated here that the marked pleocytosis and globulin excess in paresis is regarded only as evidence of meningeal irritation, and while always expected in paresis, has no definite specific value in diagnosis. Again, other luetic nervous diseases produce a positive cerebrospinal Wassermann in a variable percentage of cases, but these conditions usually give the luetic curve with the goldsol test.

While this characteristic parietic curve will undoubtedly be of the greatest value in establishing or proving the diagnosis of paresis, we are inclined

TABLE 4.—PARESIS.

No.	Name.	Date.	Blood. W. R.	Cerebrospinal fluid—			Gold reaction—										Remarks.
				W. R.	Cells.	Globulin. Nog. Ross.	1	2	3	4	5	6	7	8	9	10	
1	M. K.	2-11-14	++++	++++	81	++	5	5	5	5	5	4	3	1	0	0	Verified by autopsy.
2	A. L. K.	2-27-14	++++	++++	66	++	5	5	5	4	4	3	2	1	0	0	
3	J. M.	4-10-14	++++	++++	92	++	5	5	5	5	5	4	3	2	1	1	
4	J. A.	4-10-14	++++	++++	32	++	5	5	5	5	4	4	3	2	0	0	
5	F. Y.	4-30-14	++++	++++	15	++	5	5	5	3	4	4	3	3	2	1	
6	E. G.	5-16-14	++++	++++	65	++	5	5	5	5	4	4	3	2	1	0	Demented, progressive. Demented, progressive. Verified by autopsy.
7	M. R.	9-20-12	++++	++++	20	++	5	5	5	5	4	4	3	3	2	1	
8	E. G. W.	5-16-14	++++	++++	42	++	5	5	5	4	4	3	3	2	1	0	Tabetoparesis.
9	E. G. W.	5-16-14	++++	++++	130	++	5	5	5	5	4	4	3	3	2	1	Tabetoparesis.
10	W. H.	5-16-14	++++	++++	120	++	5	5	5	5	4	4	3	3	2	1	In remission.
11	J. S.	5-17-14	++++	++++	48	++	5	5	5	4	3	4	3	3	2	1	
12	C. F.	5-17-14	++++	++++	26	++	5	5	5	5	4	4	3	3	2	1	
13	G. L.	5-17-14	++++	++++	41	++	5	5	5	5	4	4	2	1	1	0	Terminal dementia.
14	T. W. H.	5-17-14	Neg.	++++	88	++	5	5	5	5	4	4	2	1	1	0	
15	N. P.	5-17-14	++++	++++	36	++	5	5	5	5	4	4	3	2	1	0	
16	T. S.	5-17-14	++++	++++	32	++	5	5	5	5	4	4	3	2	1	0	Terminal stages.
17	J. D.	5-19-14	++++	++++	48	++	5	5	5	5	4	4	3	2	1	0	
18	H. F.	5-19-14	++++	++++	105	++	4	5	5	5	5	4	4	3	2	1	
19	M. R.	5-19-14	++++	++++	14	++	5	5	5	5	5	4	4	2	1	0	Verified by autopsy.
20	C. H.	5-19-14	++++	++++	150	++	5	5	5	5	5	4	4	3	3	2	Advanced dementia.
21	C. S.	5-19-14	++++	++++	155	++	5	5	5	5	5	4	4	2	2	1	
22	M. K.	5-25-14	++++	++++	125	++	5	5	5	5	5	3	4	4	3	2	Remission.
23	J. L.	5-25-14	++++	++++	20	++	5	5	5	5	4	4	3	2	1	0	
24	W. M.	5-25-14	++++	++++	20	++	5	4	4	3	3	3	2	1	0	0	
25	C. H.	5-25-14	++++	++++	61	++	5	5	4	4	4	3	2	1	0	0	
26	H. R.	5-26-14	++++	++++	80	++	5	5	5	4	4	3	2	2	1	0	Tabetoparesis.
27	R. B.	5-26-14	++++	++++	60	++	5	5	5	4	4	4	3	2	1	0	Terminal stage.
28	E. L.	5-26-14	++++	++++	28	++	5	5	5	4	4	4	3	2	1	0	
29	F. M.	5-26-14	++++	++++	46	++	5	5	5	4	4	4	3	2	1	0	
30	J. W.	5-26-14	++++	++++	290	++	5	5	5	4	4	4	3	2	1	0	
31	H. V. F.	6- 1-14	++++	++++	22	++	5	5	5	5	4	4	3	3	2	1	Terminal stage.
32	H. V. F.	6- 1-14	++++	++++	37	++	5	5	4	3	3	2	1	0	0	0	
33	E. S.	6- 1-14	++++	++++	32	++	5	5	5	4	3	2	1	0	0	0	
34	W. McE.	6- 2-14	++++	++++	110	++	5	5	5	5	5	4	3	2	1	0	
35	K. C.	6- 9-14	++++	++++	29	++	5	5	5	4	4	3	2	1	0	0	
36	S. L.	6-30-14	++++	++++	16	++	5	5	5	4	4	2	3	2	1	0	
37	J. C. O.	7-14-14	++++	++++	30	++	5	5	5	5	4	4	3	2	1	0	
38	R. H.	7-28-14	++++	++++	14	++	5	5	4	3	3	2	1	0	0	0	
39	R. S.	7-28-14	++++	++++	14	++	5	5	5	4	3	2	2	1	0	0	
40	D. N.	7-28-14	++++	++++	18	++	5	5	5	4	4	3	2	1	0	0	
41	E. J. C.	8- 4-14	++++	++++	46	++	5	5	5	4	3	3	2	1	0	0	
42	R. Mc.	8- 4-14	++++	++++	58	++	5	5	5	4	3	3	2	1	0	0	In remission.
43	H. F.	8-18-14	++++	++++	46	++	5	5	5	4	4	3	3	2	1	0	
44	F. J. K.	9- 1-14	++++	++++	40	++	5	5	5	4	4	3	2	2	1	0	Terminal stage.
45	S. G.	9- 1-14	++++	++++	26	++	5	5	5	5	5	4	3	2	1	0	
46	F. J. R.	9- 8-14	++++	++++	160	++	5	5	5	4	3	2	1	0	0	0	
47	H. C.	9-15-14	++++	++++	28	++	5	5	5	4	3	2	1	0	0	0	
48	C. M.	9-15-14	++++	++++	56	++	5	5	5	5	4	3	2	2	1	0	Treat. salv. early paresis.
49	R. W. B.	9-15-14	++++	++++	20	++	2	2	3	3	1	0	0	0	0	0	
50	J. W.	2-11-14	++++	++++	93	++	5	5	4	4	3	3	2	1	0	0	Advanced dementia.
51	J. R.	2-11-14	++++	++++	8	++	5	5	5	5	4	3	1	0	0	0	
52	L. S.	7-28-14	++++	++++	27	++	5	5	4	3	3	1	0	0	0	0	
53	I. F.	5-17-14	++++	++++	22	++	5	5	5	5	5	4	3	3	2	1	In remission.
54	G. M.	10- 6-14	++++	++++	27	++	5	4	3	3	3	2	1	0	0	0	
55	G. M.	6- 1-14	++++	++++	28	++	4	2	2	3	1	0	0	0	0	0	Convulsions, advanced dementia.
56	H. H.	9-15-14	++++	++++	21	++	4	5	4	3	3	2	2	1	0	0	
57	H. H.	2-18-14	++++	++++	33	++	4	4	4	4	3	3	3	2	1	0	In remission.
58	F. P.	5-16-14	++++	++++	30	++	4	4	4	4	3	3	2	1	0	0	
59	C. A.	5-27-14	++++	++++	140	++	4	4	3	3	2	0	0	0	0	0	Blind, advanced dementia.
60	J. S.	2-26-14	++++	++++	76	++	4	4	3	3	3	3	2	1	0	0	Advanced dementia.
61	J. S.	5-16-14	++++	++++	10	++	4	4	3	3	3	3	2	2	1	0	
62	J. S.	6- 1-14	++++	++++	16	++	4	2	2	3	2	1	0	0	0	0	
63	H. S.	6- 2-14	++++	++++	26	++	4	4	2	3	2	2	1	0	0	0	
64	W. K.	6- 9-14	++++	++++	57	++	4	4	3	3	3	2	1	0	0	0	
65	H. S.	5- 9-14	++++	++++	80	++	4	2	1	1	1	0	0	0	0	0	Tabetoparesis, in partial remission.
66	H. S.	9-15-14	++++	++++	160	++	2	2	3	3	2	1	0	0	0	0	Advanced dementia.
67	L. H.	6- 9-14	++++	++++	72	++	4	2	3	3	2	1	0	0	0	0	Slow deterioration in remission.
68	L. L.	6- 9-14	++++	++++	27	++	1	2	2	2	1	1	0	0	0	0	Demented, in remission.
69	L. L.	7-15-14	++++	++++	72	++	4	1	1	1	1	0	0	0	0	0	
70	D. B.	5-20-14	++++	++++	24	++	2	4	3	3	3	2	2	1	1	0	
71	D. B.	6- 1-14	++++	++++	88	++	3	2	2	1	1	1	0	0	0	0	
72	L. W.	5-19-14	++++	++++	130	±	1	2	4	4	3	3	2	1	0	0	Imbecile, early tabetoparesis.
73	F. S.	5-25-14	++++	++++	36	±	2	2	3	3	2	1	0	0	0	0	Demented parietic, possibly cerebral syphilis.
74	F. S.	9-22-14	++++	++++	9	±	1	2	2	3	2	1	0	0	0	0	Juvenile in remission.
75	C. B.	6- 2-14	++++	++++	90	++	2	2	3	3	2	1	0	0	0	0	
76	R. L.	6- 2-14	++++	++++	68	++	1	1	1	1	1	0	0	0	0	0	Two years' duration; no phys. signs of paresis.
77	R. L.	7-14-14	++++	++++	8	++	2	2	2	2	1	1	0	0	0	0	

to believe that the reaction is dependent on the presence in the spinal fluid of certain proteins produced by parenchymatous degenerative nervous tissue changes, commonly due to syphilis, as in paresis or cerebral lues, but not necessarily of luetic origin. In short, the reaction is probably not specific for paresis, but the result of pathological changes, more often found in paresis than other

neurological conditions and hence designated the paretic type, curve or zone. These views are supported by the findings of paretic curves by Miller and Levy (2) in one case of brain abscess, and two cases of epidemic meningitis, and by a similar finding in a case of multiple sclerosis by Kaplan and McClelland (3). It has not been demonstrated that certain other forms of meningoencephalitis do not

TABLE 5.—TABES.

No.	Name.	Date.	Blood. W. R.	Cerebrospinal fluid— Globulin				Gold reaction										Remarks.
				W. R.	Cells.	Nog.	Ross.	1	2	3	4	5	6	7	8	9	10	
71	I. DeH.	4-10-14	—	—	8	—	±	3	3	4	4	4	3	2	0	0	0	Verified in autopsy. Dementia præcox and tabes.
72	F. H.	5-19-14	—	—	28	—	±	2	2	3	4	4	3	2	1	0	0	
73	D. S.	5-19-14	—	—	16	—	±	1	1	2	2	1	1	0	0	0	0	Dementia and tabes, stationary. Tabes, stationary.
74	F. M.	6-16-14	++	+	95	±	+	2	2	2	1	1	1	0	0	0	0	
74	F. M.	9-22-14	—	—	3	±	±	2	2	1	1	1	0	0	0	0	0	

TABLE 6.—CEREBROSPINAL SYPHILIS.

No.	Name.	Date.	Blood. W. R.	Cerebrospinal fluid— Globulin				Gold reaction										Remarks.
				W. R.	Cells.	Nog.	Ross.	1	2	3	4	5	6	7	8	9	10	
75	E. C.	2-11-14	++++	+	39	—	—	1	1	2	3	3	2	1	0	0	0	Slow pupillary light re- action, demented. Irregular pupils, station- ary.
76	H. McG.	4-30-14	++++	+++	170	+	+	2	2	2	4	4	3	3	2	1	0	
77	M. S.	3-18-14	++++	+	16	—	+	2	3	3	3	3	2	1	0	0	0	
78	M. A. W.	3-11-14	++	±	31	+	±	1	2	3	3	3	1	0	0	0	0	
79	J. C.	5-16-14	++++	+	23	+	+	2	3	4	4	3	3	2	1	0	0	
80	M. E. W.	7-8-14	++++	—	5	—	±	5	2	3	3	3	2	1	0	0	0	
81	G. H.	5-17-14	+++	—	8	—	—	2	2	2	2	1	0	0	0	0	0	
82	M. L. T.	7-8-14	++	+	34	—	+	2	2	2	1	1	0	0	0	0	0	Hemiplegia. Demented, stationary, physical signs.
83	N. F.	8-18-14	+	+++	27	+	+	2	2	2	2	2	1	0	0	0	0	
84	M. S.	5-26-14	+++	—	16	±	+	1	1	2	2	1	0	0	0	0	0	

TABLE 7.—MISCELLANEOUS PSYCHOSES.

No.	Name.	Date.	Blood. W. R.	Cerebrospinal fluid— Globulin				Gold reaction										Remarks.
				W. R.	Cells.	Nog.	Ross.	1	2	3	4	5	6	7	8	9	10	
85	E. K.	2-11-14	+++	—	6	—	—	1	1	1	1	1	0	0	0	0	0	Dementia præcox. Dementia præcox. Dementia præcox. Dementia præcox. No evidence of nervous syphilis.
86	L. G.	6-15-14	++	—	11	+	+	2	2	2	1	1	1	0	0	0	0	
87	I. W.	7-8-14	+++	—	4	—	+	1	1	1	1	1	0	0	0	0	0	
88	B. K.	6-15-14	++	—	120	±	+	2	2	2	1	1	0	0	0	0	0	
88	B. K.	7-14-14	++++	—	60	+	+	4	3	3	3	2	1	0	0	0	0	Dementia præcox. Dementia præcox. Dementia præcox. Dementia præcox. Dementia præcox. Dementia præcox. Alcoholic psychosis.
89	A. T.	9-1-14	—	—	1	—	—	2	1	1	1	0	0	0	0	0	0	
90	A. S.	6-9-14	—	—	2	—	±	1	1	0	0	0	0	0	0	0	0	
91	A. Y.	10-6-14	++	—	7	—	—	1	1	1	0	0	0	0	0	0	0	
92	J. J.	10-6-14	+	—	4	±	—	1	1	1	0	0	0	0	0	0	0	
93	A. Y.	10-6-14	++++	—	3	—	—	1	1	1	0	0	0	0	0	0	0	
94	E. M.	3-30-14	—	—	0	—	±	1	1	1	1	0	0	0	0	0	0	Alcoholic psychosis. Alcoholic psychosis. Alcoholic psychosis.
95	C. N.	5-26-14	+++	—	12	±	+	2	2	2	2	2	0	0	0	0	0	
96	W. D.	7-14-14	++++	—	12	±	+	2	2	1	1	0	0	0	0	0	0	
97	E. B.	4-30-14	—	—	0	—	±	1	1	1	1	0	0	0	0	0	0	Manic depressive. Manic depressive. Manic depressive. Manic depressive. (Thrombotic soften- ing.)
98	V. W.	5-20-14	—	—	0	—	±	1	1	2	2	2	2	1	0	0	0	
99	J. J. F.	9-8-14	—	—	20	—	—	1	1	0	0	0	0	0	0	0	0	
100	D. B.	10-6-14	+++	—	5	—	—	1	1	1	0	0	0	0	0	0	0	
101	T. T.	4-10-14	++	—	0	—	—	1	1	1	0	0	0	0	0	0	0	Gross brain lesion. Gross brain lesion. Gross brain lesion. Gross brain lesion. Gross brain lesion.
102	J. O.	6-2-14	+++	—	10	±	+	1	1	1	1	0	0	0	0	0	0	
103	H. L.	6-9-14	+++	—	33	+	+	1	1	1	0	0	0	0	0	0	0	
104	A. S.	9-29-14	—	—	17	+	+	2	2	2	2	2	2	1	0	0	0	
105	E. G. H.	9-29-14	—	—	3	±	+	1	1	1	0	0	0	0	0	0	0	
106	L. T.	4-30-14	++++	—	6	—	±	1	1	1	1	1	0	0	0	0	0	Senile psychosis. Senile psychosis.
107	H. G.	6-16-14	—	—	4	—	±	1	1	1	1	1	0	0	0	0	0	
108	J. McC.	6-2-14	+++	—	32	±	±	1	1	1	0	0	0	0	0	0	0	Paranoia. Paranoia.
109	E. R.	10-6-14	+++	—	2	—	—	1	1	1	0	0	0	0	0	0	0	
110	H. B.	5-19-14	—	—	3	—	±	1	1	2	2	1	0	0	0	0	0	Imbecility.
111	M. S.	2-11-14	—	—	3	—	—	1	1	1	1	0	0	0	0	0	0	Unclassified psychosis.

TABLE 8.—COMPOSITE TABLE OF RESULTS.

Disease.	No. of cases.	Blood Wass.		Spinal Wass.		Ross test.		Noguchi test.		Pleo- cytosis.	Gold reaction— Pos. Doubt. paretic. paretic Luetic				Neg.
		Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.		zone.	reaction.	zone.	zone.	
Paresis	70	66	4	65	5	66	4	63	7	69	62	4	3	1	
Tabes	4	1	3	1	3	1	3	0	4	3			2	2	
Cerebrospinal lues	10	10	0	4	6	6	4	4	6	8			6	4	
Dementia præcox	9	7	2	0	9	2	7	2	7	2			1	8	
Alcoholic psychosis	3	2	1	0	3	2	1	0	3	2				3	
Manic depressive psychosis	4	1	3	0	4	0	4	0	4	1				4	
Psychosis with brain lesion	5	3	2	0	5	4	1	2	3	2				5	
Senile psychosis	2	1	1	0	2	0	2	0	2	0				2	
Paranoia	2	2	0	0	2	0	2	0	2	1				2	
Imbecility	1	0	1	0	1	0	1	0	1	0				1	
Unclassified psychosis	1	0	1	0	1	0	1	0	1	0				1	

give the paretic goldsol reaction in the spinal fluid. The result in trypanosomiasis, a protozoal type, may prove interesting.

Since it is more recently believed that tabes and cerebrospinal syphilis are but more localized and interstitial types of nervous lues, in contradistinction to paresis, a more diffuse and parenchymatous involvement, there appears to be no good reason why gradations of the latter process may not be found associated with tabes and cerebrospinal syphilis. This we know is so in tabetoparesis, in which the goldsol paretic curve is also found. It is but logical to expect that clinical cerebrospinal syphilis, if extensive, may produce a similar reaction, assumed by us to be dependent mostly on parenchymatous alterations. Such paretic curves in cerebrospinal lues were occasionally obtained by Kaplan and McClelland (3) and by Miller and Levy (2) according to our interpretation and also by several German observers.

To certain other observations we desire to direct attention. In many of the weaker reactions, Cases XLVIII, LIV, LX, LXI, LXIV, LXVI, LXVII, LXVIII, a distinct luetic curve, or strong reaction in the third, fourth or fifth tube, is found, together with a stronger reaction in the first or second tube, or alone. It is possible that very early in paresis, only the luetic curve of localized, interstitial or vascular syphilis is present. This view is supported by Cases XLVIII and LXVII, both early cases. With the incidence of diffuse parenchymatous nervous syphilis, exemplified by paresis, certain additional proteins reaching the spinal fluid may produce the characteristic curve and reduction, which in most cases is maintained throughout the course of the disease. Cases LXIII, LXV, LXIX, seem to demonstrate that in remission, these proteins found in paresis may be partially or wholly lost, leaving only the luetic reaction. This may also be seen in Cases LXIV, LXVI, LXVIII, which are advanced paresis with dementia. It is in these stages that our experience has taught us to expect a weaker or variable cerebrospinal Wassermann, pleocytosis or globulin reaction. Intensive treatment probably will produce, if favorable, a reaction similar to that seen in these cases in remission, and we suggest that the goldsol test be employed to help control the results obtained by the use of intraspinal salvarsan or salvarsanized serum.

Findings in other psychoses. Many cases recorded among the nonluetic psychoses gave positive serum Wassermann reactions before the spinal fluid was examined. These have in most part advanced beyond the secondary stage of syphilis. Apart from these it will be noted that all our cases reacted to the extent of one or two plus in the first tube, probably a result due to the presence in the spinal fluid of certain proteins common to all types of cerebral disease. These results early compelled us to place no confidence in a reaction which did not reach a maximum of three plus or dark blue without traces of red.

Accordingly, we obtained in tabes but two, LXXI, LXXII, of four cases, fifty per cent., providing a luetic curve of sufficient intensity to be termed positive. Cases LXXIII and LXXIV are old and stationary. Cerebrospinal syphilis furnished six positive

luetic curves, LXXV to LXXX inclusive, in ten cases or sixty per cent. The value of the goldsol test in these two luetic diseases is shown by the fact that, of the total of eight positive results, five gave negative cerebrospinal Wassermann reactions and two doubtful weak positive reactions. On the other hand, one case of cerebrospinal syphilis, LXXXIII, gave a positive cerebrospinal Wassermann and a negative goldsol test. The luetic curve is in no way specific for these individual pathological conditions. Case LXXX gave complete reduction in the first tube, a condition very suggestive of paresis. Case LXXXVIII, under dementia præcox also furnished, on one examination, a paretic curve. The diagnosis, at first believed to be paresis, is now revised to dementia præcox. These two cases gave a very strong serum and a negative fluid Wassermann and their courses will be watched with interest.

Excluding this last named case of dementia præcox, we did not obtain a positive reaction in, nor a characteristic curve for any psychosis of nonluetic origin. This group is composed of twenty-seven cases. It is possible that these weak reactions may provide a rough index of the extent of organic brain disease in nonluetic psychoses, or, with the development of a more delicate technic, also furnish different types of curves for various psychoses.

CONCLUSIONS.

1. In our work with psychiatric cases, all reacted to the extent of one or two plus in the first tubes, and hence no reaction less than three plus or dark blue was recorded as positive.

2. In paresis, the test is of great value in diagnosis, at least ninety per cent. providing the typical curve, the true specificity of which we doubt. The goldsol test should be used in conjunction with the serum and spinal fluid Wassermann reaction, globulin tests, and cell count, as a more delicate method of interpreting their results and to correct them when they fail.

3. Our cases of tabes furnished a marked luetic curve in fifty per cent.; cases of cerebrospinal syphilis in sixty per cent.

4. Nonluetic psychoses produce weak reactions, without characteristic curves, so far as we have ascertained.

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Recurrent Bronchitis in Children.—Charles Gilmore Kerley, in *New York State Journal of Medicine* for November, 1914, describes a clinical group of cases in which there are recurrent attacks of cough with bronchitis, and usually with spasm. These cases seem to be due to a systemic intoxication from the use of certain food substances which the organism is incapable of accommodating. The foods usually to blame are the fat of cow's milk and the sugars. A reduction in the intake of these, or their total removal from the dietary, was followed by most gratifying results. Eczema and allied skin affections were also prevalent in these children.

THE ATAXIA OF TABES.*

Treatment of Four Cases by Dr. William J. M. A. Maloney's Method of Reeducation, with a Brief Outline of the Method Used.

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Up to the time when Frenkel, in 1897, organized and popularized his exercise method of reeducating ataxic tabetics, little or nothing was done to relieve this distressing symptom, ataxia. These exercises depend upon reeducation of muscle groups and the extremity as a whole by graded coordinated movements. The patient is trained to stand at first and to use eyesight to compensate for the loss of muscle sense. Simple training movements are then added, such as touching with the toe a figure marked upon the floor, later walking movements with places for the feet marked out. As the patient improves, more complicated walking exercises are devised. By this method of reeducation, there are few patients that do not improve to some extent; a few improve to a degree that permits unaided walking in public. Complete failure is exceptional, but relapses are common. Frenkel, in his *Monograph on Tabes*, although stating that "tabetics who lost their sight at an early stage of the disease seldom developed much ataxia, and developing blindness is accompanied by a marked improvement of the ataxia already present;" nevertheless insists that sight is indispensable for the successful reeducation of ataxic tabetics. The work of Déjerine and Martin, Benedikt, Förster, Maloney, and a great many others reporting on the influence of optic atrophy on ataxia of tabes, shows without doubt that diminution of sight has an ameliorating effect on the ataxia of tabes.

The Frenkel treatment takes practically no cognizance of the effect of fear upon ataxia. We all know the variations of an ataxic tabetic from day to day, in public and at home, when he is under some emotional stress. These variations in his ataxia are obviously independent of actual pathological lesions. They are unquestionably due to psychic factors which are readily influenced by the environment of the patient and should not be underestimated in our endeavor to overcome the existing ataxia. By using muscular relaxation, we not only produce a tranquillizing effect upon the various emotional factors, such as fear, depression, etc., that enter into the composition of ataxia, but in addition we have a powerful agent to combat fatigue, to which these patients are particularly susceptible. Of the value of coordinated movements there can be no question. Leyden, Goldscheider, Frenkel, and the Swedish school of gymnasts showed that what prevailed in health did not cease in disease where function of movement was disturbed. In these remarks, I wish merely to point out the advantage of Maloney's method of reeducation, not in any way to minimize the value of Frenkel's treatment. Following is a brief outline of the method by which the cases here reported were treated:

1. *Medicinal.* Appropriate measures are taken to acquire information regarding the activity of the original infection and, if necessary, the usual medicinal treatment is instituted.

2. *Mechanical.* We endeavor to correct or minimize, by means of plates, shoes, kneecap, and braces, any mechanical disabilities. The shoes are built so as to have a broad, rigid surface. The heel is low and wedge shaped with the base of the wedge on the ground. The ankles are reinforced so as to prevent the foot from turning, the whole shoe being built as light as possible. A cast of the foot at rest and in action is taken, and a suitable plate for the arches is made. The kneecaps prevent sudden giving at the knees, to which these patients are subject. This adds confidence when the patient is walking. The attitude of an ambulatory ataxic lacks confidence and is that of a man extremely fearful. It is therefore evident that any measures which will reduce the factors of his fear and so increase confidence, should be used.

These mechanical measures are described fully by Dr. Victor E. Sorapure and Dr. William J. M. A. Maloney in *Notes on Mechanical Support for the Feet in Locomotor Ataxia*, published in the *Medical Record* for May 16, 1914.

3. *Educational exercises.* These are divided into, 1, breathing and relaxation exercises; 2, coordinated movements; 3, balancing.

1. *Breathing and relaxation exercises.* A quiet room, preferably darkened, is required, also a bed or couch wide enough to keep the patient's arms from hanging over the side when relaxed, and a small cushion for the patient's head. The bed should be high so that the operator can manipulate comfortably.

The patient, blindfolded, is placed in a recumbent position, with loosened clothes, and is first asked to inspire deeply, using the diaphragm (restricting the thoracic movements), and at the height of inspiration to pause, then slowly and evenly expire to the fullest extent and pause again. A small sandbag or weight on the abdomen will help fix the attention of the patient on the exercises.

After about twelve deep breaths have been taken, the patient is asked to take a few not quite so deep, to shorten the pause, and fix his attention on the sensation of the air current passing through his nasal cavities. After a few minutes of medium breathing, the depth is still more decreased and the pause shortened until the patient is breathing quietly and regularly, with his abdomen as if asleep.

To relax, passive movements in which the muscles are alternately lengthened and shortened, are employed. The scalp, forehead, eyelids, cheek, and jaw muscles are first passively moved until wrinkling and blinking of eyelids diminishes or disappears, and muscular spasm is reduced or eliminated. Next a shoulder is relaxed, then an arm; each in turn must be passively moved until all traces of muscular tension vanish and the part lies motionless and flaccid and falls limply from any unsupported position. After a part is relaxed those previously and that newly relaxed should be briefly dealt with again, in the order in which they were first relaxed. This linking of parts previously, to parts newly re-

*Read before Society of Alumni of Lebanon Hospital, December 1, 1914; cases shown before Bronx County Medical Society, January 20, 1915.

laxed is helpful in bringing the whole to a satisfactory state of relaxation.

By this preliminary procedure, we eliminate all extraneous muscular movements and spasms; produce mental tranquillity and concentration, thereby obtaining a more perfect discrimination of sense impressions derived from joint or muscle movements.

We are now ready to go on with the movements. These consist of flexion, extension, abduction, and adduction, in fact any simple movement that can be performed at the joint on which we are working. As a rule starting with the ankle joint first, we then take the knee and the hip in order mentioned on the same side. These movements follow the plan outlined below.

2. *Coordinated movements at the joints.* Passive movement is the first one done on the joint at which we are working. It should be done slowly and to the fullest range of motion possible, pausing at each extreme, and returning the foot to normal position when through. The same movement is then performed with slight resistance offered by the patient, the resistance being gradually increased. The patient then performs the movement with the physician guiding it along the proper plane. Guidance is gradually diminished, and as the patient becomes more proficient, the movement is done unguided. Finally the movement is repeated against the resistance of the physician. This order should be followed in all the movements taught. There should be pauses for relaxation and rest between the movements. At no time should a patient be allowed to become fatigued. After the patient has mastered these movements at all points, he is ready to start balance.

3. *Balance.* At first, the patient should get down on his hands and knees with his feet braced against the wall. Creeping, slowly moving first his hand and then his knee forward, should then be taught; after that, knee balance followed by progression on the knees. This same order in upright position follows.

From the very first lesson, blindfolding should always be insisted upon. During every movement the patient counts rhythmically so as to educate him to move easily, uniformly, and at a regular time. In creeping and walking exercises, strips of carpet or linoleum of different widths are used to give direction; as the patient becomes more and more proficient, narrow strips are used. These exercises are fully described by Dr. William J. M. A. Maloney in his paper, *The Cure of Ataxia*, NEW YORK MEDICAL JOURNAL, November 29, 1913.

CASE I. J. F. H., aged forty-six years, single, American. Family history, negative. Past history: Denied venereal disease. Moderate user of tobacco and alcohol. Present history: Seven years ago, patient noticed that his movements were uncertain when trying to get about in a dark room. Found he was unable to walk down stairs without support. Had occasional attacks of sharp shooting pain in his legs and attacks of pain in his abdomen, accompanied by vomiting. For three years his uncertainty of gait became worse, but he managed to get around in public moderately well without assistance.

At this time, while on his way to visit his physician, he attempted to step up a street curb, but found he was unable to do so; he became greatly alarmed and promptly collapsed. He was assisted home, where he stayed for six weeks refusing to venture out in public again. In his home he moved about cautiously, with the assistance of a stick,

which he had to use continuously. His ataxia became markedly worse after his fright. For past four years he has had bladder pains and difficulty in micturition.

Physical examination: Poorly nourished man. Heart and lungs negative. Pupils contracted, equal, irregular, reacted to accommodation, but fixed to light on both sides. Ptosis of left lid. Muscles moderately hypotonic. Increased range of motion at joints. Knee jerks lost on both sides. Sensory losses and ataxia of lower extremities marked on both sides. Patient was unable to stand or walk without the aid of stick, and collapsed immediately when eyes were closed.

This patient received about forty lessons in all. After twenty-four lessons, his ataxia was improved to such an extent that he was able to discard his stick and again walk freely in public. When seen in August, 1914, his ataxia and other symptoms mentioned previously, referring to locomotion, had entirely disappeared. He was practically in the same condition when last seen, four months later, during which time he had neglected to practise his exercises. He is a decidedly neurasthenic type of patient and is greatly influenced by any emotional disturbance; still he has but very little evidence of what was at one time a severe ataxia.

CASE II. G. W., aged forty-two years, bookkeeper, American. Family history: Mother died of cardiac disease. Past history: Ordinary diseases of childhood. Gonorrhea twenty-five years ago. Hard chancre nineteen years ago, for which the patient received treatment extending over a period of two months. Did not remember secondaries. Present history: Five years ago, patient began to have sharp shooting pains in the leg. Noticed that he became tired readily. Gradually lost weight. Sight in right eye became poor. Found he had great difficulty in walking in the dark and was unable to bend over when he closed his eyes. Had feeling of numbness in left leg, followed, one year later, by same feeling in right leg. Three and a half years ago, patient found that his uncertainty had increased to such an extent that he had to use a stick to get around in public. About eighteen months ago, the patient received six injections of salvarsan, which was followed by severe gastric crises, coming on intermittently for the next five months. His ataxia became very much worse. Sexual power and desire lost.

Physical examination: Well nourished man. Heart and lungs negative. Pupils unequal, right very much larger than the left, irregular, reacted to accommodation, but fixed to light on both sides. Ptosis of left lid. Well marked hypotonia of muscles. Joints showed increased range of motion. Knee jerks lost on both sides. Romberg's sign well marked. Sensory losses and marked ataxia of lower extremities.

G. W. received about thirty lessons in all. On account of traveling from out of town to his place of business daily, and the irregularity of his treatment, I have not so far been able to inspire sufficient confidence to induce him permanently to discard his stick. Nevertheless his ataxia has almost entirely disappeared. He does not use his stick in the house, sometimes walking without it even in the dark. He now stands fairly well with his eyes closed, and bends over easily. He is able to balance on one foot. His muscular hypotonia is very much better. His mental attitude toward life is brighter, and I have hopes that at some near future time he will be able to discard his stick permanently.

CASE III. H. K., aged thirty-nine years, Austrian, waiter. Family history: Father died of cardiac disease. Mother died of cerebral hemorrhage. Seven brothers and sisters died in infancy, cause unknown. Past history: Measles during infancy, pneumonia at twenty years of age, followed by attack of jaundice. Seven attacks of gonorrhea, hard chancre nineteen years ago, treated for eight months. Married twelve years, wife bore two children,

one seven and the other ten years of age, both alive and well at the present time. Never had any miscarriage. Sexual weakness for the past two years. Present history: Patient noticed about five years ago, that his legs became tired very readily. Two years ago, he noticed numbness and girdle sensation in left leg. At this time, while on his way to work one morning, he had severe cramplike pain which lasted about two minutes. It made him feel as if his left knee was seized in a vise. Had to be assisted home and went to bed. After two weeks, he left his bed, but found that he had lost control of his left leg. Right leg remained steady for about one year, when it was also involved. From the onset of his primary attack, two years ago, patient has had to use a stick to get around. He had great difficulty in going up and down curbs and stairs. He was unable to move about in the dark with any degree of certainty. Attacks of lightning pains came on frequently but he had had no gastric crises.

Physical examination: Well nourished man. Heart and lungs negative. Pupils irregular, unequal, left larger than right, reacted to accommodation, but not to light. Ptosis of the left lid. Muscular hypotonia moderate. Increased range of motion at the joints. Sensory losses and moderate amount of ataxia both sides. Romberg's sign present. Knee jerks lost on both sides.

This patient received about twenty-four lessons in all. After fourteen lessons, he was able to discard his stick and return to work, after having been idle for two years. He has been returned to a preataxic state in about five weeks of treatment. Needless to say, that he still has, with the exception of his ataxia, all the cardinal signs of tabes. I might add that in June, 1913, he received three injections intradurally of salvarsanized serum by the Swift-Ellis method, and his ataxia and other symptoms became so much worse that he refused further treatments along these lines.

CASE IV. A. L., aged forty-five years, married, German, butcher. Family history, negative. Past history: Denies venereal disease. Moderate user of alcohol and tobacco. Present history: Nine years ago, noticed unsteadiness in walking, particularly at night or in a darkened room. Difficulty in walking down stairs. One year later, noticed numbness of extremities, most marked on the left side. Began to have severe lightning pains. His ataxia became so pronounced that he had to use a stick to get around. Five years ago, began to have severe gastric crises from which he still suffered from time to time. For past two years his ataxia became stationary, except when he labored under some emotional stress, when it became noticeably worse. For the past seven years patient had been impotent.

Physical examination: Well nourished man. Heart and lungs negative. Pupils unequal, irregular, reacted to accommodation, and fixed to light on both sides. Ptosis of both lids. Moderate hypotonia of the muscles. Knee jerks lost on both sides. Marked ataxia of lower and slight ataxia of upper extremities. Sensory losses most marked on left side. Collapsed when eyes were closed, and had his eyes steadily glued to the ground.

This patient received about fifty lessons in all, thirty of which were given in the first six weeks in my care. After eight weeks of treatment, he was able to discard the use of his stick and walk about the streets freely. His first attempt resulted in a walk of twelve blocks, negotiating every curb without assistance. He is now able to stand with his eyes closed, walks without watching his feet, and readily ventures about in the dark and in public without the aid of his stick.

SUMMARY AND CONCLUSIONS.

Other patients who have had the treatment and report for observation, show continued improvement. So far there have been no relapses in any of the cases. These patients all show decided benefit physically, having all gained in weight during the

course of the treatment. They state that their pains and attacks of gastric crises have all been decreased in number and severity and they feel better than ever before.

One patient who has not been under observation for the last nine months, reported recently that for the past four and one half months he has been compelled, on account of increased business, to work twelve hours a day, going freely about the city in the course of his work. He came to get my consent to an extensive trip on the road, feeling competent to undertake this journey. This patient was formerly extremely ataxic and quite unable to do other than executive work in the office.

CONCLUSIONS.

1. The clinical observations made by most writers reporting the effects of blindness on the ataxia of tabes, and the results obtained in these and other cases treated along the same lines, show the rationality of reeducating ataxic tabetics blindfolded.
2. By this method of treatment, we rapidly increase the actual coordinating power of our patients.
3. We decrease the psychic components of ataxia, such as fear, and combat fatigue.
4. Lastly, we instill hope and confidence into a class of patients who heretofore have received little or no encouragement.

I WEST EIGHTY-FIFTH STREET.

THE TREATMENT OF PUERPERAL SEPSIS.*

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Puerperal sepsis is a generic term which embraces all infections through the genital tract occurring during the puerperium. It applies equally, therefore, to infections occurring after abortion and after labor. I shall confine my remarks to the disease post partum: Our present knowledge of puerperal infections resembles the confused medical views entertained toward infectious fevers at the beginning of the nineteenth century. In those days typhoid, typhus, grave malarias, general miliary tuberculosis, and bacteriemias were not yet classified or separable, and such erroneous and misleading terms as "typhomalaria," etc., were current.

Puerperal sepsis may be due to a variety of bacteria—most commonly to streptococci, staphylococci, colon bacilli, or gonococci. Various other less common organisms have been found. Bacteria of the same variety display variations in virulence; needless to say those of different varieties show even greater variations in the diseases they produce. In addition to the different classes of germs which may be present, puerperal sepsis may develop along different lines, depending upon the point of entry and the method of dissemination. Thus in some cases a local infection of perineal injuries occurs; in others the uterus alone is affected, in still others the tubes and pelvic peritoneum are invaded, while extension along the lymph channels, the veins of the pelvis and abdomen, the circulating blood, or the general peri-

*Read before the Mt. Vernon Medical Society, February 19, 1915.

toneum are not uncommon. From this it must be apparent that puerperal infection is an inclusive term which embraces a multitude of diseases. Although at the autopsy table it is comparatively easy to determine, not only the infective germ, but also the variety of invasion that has occurred, during life it is often impossible to distinguish the portal of entry, the channels through which extension occurs, or the limits of the disease. This is shown daily when men of experience differ in a concrete case, each one holding an opinion at variance with that of his colleagues.

I freely confess that in many cases I am unable to make an accurate diagnosis, and I may add that I regard with the utmost suspicion those diagnosticians who allege that they are able to distinguish the virulence, the degree of extension, and the prognosis in this disease.

Treatment. When an internist is confronted by an obscure disease, what does he do? Does he boldly open the abdomen, puncture the spinal cord, aspirate the chest, etc., or does he treat the patient symptomatically until the further course clears up the diagnosis? If he is wise and conservative, he takes the latter course. Why, then, should the obstetrician act otherwise? It is true that until quite recently many of us were taught, in a case of fever after labor, first to irrigate the uterus, next to curette the womb, and finally, if these measures failed, to remove the offending organ. The results were not brilliant, and today a marked reaction is taking place against such teachings. The best way to treat puerperal infection is to avoid it! This is not always possible, but it is at least possible greatly to reduce the number of cases. How many general practitioners or even obstetricians, I ask, instruct their pregnant patients properly?

In each case the patient should be examined for signs of infection during pregnancy. Vulvar or cervical gonorrhea, Bartholinian abscesses, anal fistulæ, vulvar eczema should be cured before labor sets in. Pyelitis or cystitis should be treated, the bowels kept open, the general health improved. Coitus must be forbidden after seven and a half months, vaginal douches are not allowed, and if the vulvar outlet gapes, shower baths must be substituted for the tub during the later months.

Labor should be conducted both aseptically and antiseptically. This is not the occasion to enter into details. To confine a woman, whether in a palace or a tenement without sterile towels, without proper scrubbing of the hands, and without gloves is little short of criminal. Even if all these precautions are taken, they may be nullified by a moment's thoughtlessness, by meddlesome interference, or too frequent examinations.

The time to remove retained placental rests is not two or five days after labor, but immediately after the placenta has been expelled and examined. The time to treat birth injuries is, likewise, immediately after labor.

When fever develops. If in spite of the precautions referred to in barest outline, fever develops, what should we do? Remember that in most cases a rise in temperature in the puerperium is transitory and of little significance. Many a light infection is converted into serious or fatal disease by meddling.

Let me tell what I do in the case of one of my own patients, if she shows signs which might be interpreted as infection—fever, rapid pulse, malaise, etc. I examine the breasts for induration, palpate the kidneys for signs of pyelitis, and examine the urine for pus. Her chest is gone over, the amount of lochia determined, the bowel function inquired into. Do I examine her genital tract? By no means, because I know that the uterus is empty. At the most I carefully inspect a sutured perineum to see that signs of infection are absent. Should local tenderness, a drop of pus along a stitch hole and edema be present, all perineal sutures are removed; the wound is opened, touched up with half strength tincture of iodine, and lightly packed with iodoform gauze.

If no improvement occurs, do I irrigate the uterus to combat retention, or curette away the protecting granulation tissue, and occluding placental thrombi? Do I grasp the cervix and pull it to the outlet, breaking up delicate adhesions around the tubes and ovaries which encapsulate a forming tuboovarian abscess?

No! I keep my hands off and wait for distinct signs, for local symptoms which require interference. The intervening time is, however, well spent. The general condition is improved by open air (roof) treatment, by careful attention to the diet (easily digested, nutritious), by keeping the bowels and kidneys active. Involution is assisted by small, repeated doses of ergot, and as long as the fundus is palpable above the promontory, by an ice bag and the Fowler position. Should stimulation be required, drugs such as caffeine, camphor, digitalis are used. Quiet and sleep are induced by hypnotics, pain combated with ice bag, codeine, or morphine.

Should local symptoms develop, these are dealt with only as they arise. Pus foci, such as pelvic abscesses, abscesses above Poupert's ligament or even tuboovarian abscesses are merely drained when they distinctly "point." Phlebitis in the lower extremities is treated by immobilization, elevation of the limb, and absolute quiet. Even pelvic phlebitis I do not attempt to cure by abdominal section and ligation of the veins.

When blood culture shows a bacteriemia, the waiting policy is equally effective. Virulent cases of streptococcemia, which are usually fatal within two to three weeks, may be given a polyvalent antistreptococcus serum, which sometimes, though rarely, helps. Staphylococcus and colon infections are frequently cured after a more or less protracted illness, during the course of which metastatic abscesses, in distant organs (kidney, muscles, eye) may require incision.

In those cases in which exudates develop around the uterus recovery almost invariably follows. Pelvic abscesses are common sequelæ.

In cases admitted to the hospital or seen in consultation, where the conduct of the labor, especially the complete expulsion of the placenta, is in doubt, the temptation to explore the uterus is almost uncontrollable. Unless the size of the uterus is unmistakably far greater than that warranted by the number of days elapsing since labor, this organ should be left untouched. Only if very great disproportion exists, indicating retention of the greater

part of the placenta, or the presence of a fibroid, is very gentle digital exploration permissible. Late and persistent hemorrhage, if serious, is treated by repeated packing of the uterine cavity with iodoform gauze (which is never left *in situ* more than twelve hours), without downward dislocation of the womb during manipulation.

The object of all therapy is to cure the patient. Extreme conservatism has shown excellent results, and even if occasionally at autopsy it would appear that the fatal outcome might have been avoided by more radical measures, in the long run more patients will be cured by noninterference. This assertion is warranted by the fact that so many minor grades of infection are converted into serious, general invasions by interference. A great majority of serious types end in recovery when the natural protective processes are merely sustained, and thus the obstetrician avoids hazarding the chances of recovery upon a "kill or cure" policy.

983 PARK AVENUE.

SPLANCHNIC NEURASTHENIA AND ITS TREATMENT.*

BY A. B. HIRSH, M. D.,
Philadelphia.

The fact that the protean symptoms of true neurasthenia, those due to nerve exhaustion, can be removed by one generally applied method, mental calm with muscular passive action (the Weir Mitchell rest cure, in practical shape), is now everywhere accepted. That patients with neurasthenia associated with overdilatation of the intraabdominal veins need radically different treatment is not, however, as widely known as the relative frequency of their occurrence would seem to suggest.

It was Abrams, of San Francisco,¹ who, a decade since, proved the existence of this syndrome, its differential diagnosis, and proper therapy. Along with the familiar symptoms of neurasthenia he included those of relaxation and often prolapse of various abdominal structures; the wall muscles are flabby and lack tone; sensitiveness of abdominal tissues is general, on manipulation; the bowels are distended with gas; the liver is enlarged and tender; there is more or less increase in the area of percussion dullness, below the umbilicus, due to distention of splanchnic veins; the cardiosplanchnic phenomenon is present until this distention is markedly reduced. Detailed methods for eliciting the two latter symptoms are given by Abrams in his work.

In The Surgeon's Diagnosis in Neurasthenic Conditions,² Robert T. Morris states: "Toxins of a single group of colonic bacteria which produce the indols, skatols, and phenols may, when occurring in excess beyond the metabolizing efficiency of the individual, interfere with protoplasmic daily cell construction of the ductless glands. Internal secretion of these glands is then abnormal in character and it stimulates the secretion of hormones which are not quite normal in character—all of this work being under control of the sympathetic nervous system.

The sympathetic nervous system, obliged to do work out of the ordinary, becomes exhausted. We may then have splanchnic neurasthenia, which allows relaxation of peritoneal supports of abdominal viscera; and they begin to sag. With splanchnic neurasthenia there is loss of efficiency of the secretions which carry on digestion, and the microbes then have opportunity to use the pabulum of contents of the intestinal tract for their own purposes, to a greater extent than previously. This results in the establishment of a vicious circle."

The coincidence of three cases now under treatment, also the hope for more extended use in the profession of the various dependable physical measures advised, is my warrant for redirecting attention to the condition at this time.

CASE I. An unmarried woman, aged forty years, was sent by her physician with the history of increasing general debility, depression of spirits, uninvigorating sleep, failing appetite, and poor digestion and assimilation of what little food was actually taken. Her skeletal development was small and musculature flabby, as might be expected after years of sedentary occupation in one of congenitally defective physique. There was a lack of subcutaneous fat. Her height was 5 feet 1 inch and her weight, 100 pounds. The skin was not clear and mucous membranes were somewhat pale. The heart sounds were rather indistinct, the impulse feeble, but murmurs absent, suggesting muscular insufficiency. The cardiosplanchnic phenomenon was strongly evident. At the first visit the blood pressure was found to be, sitting, left arm, 105 mm. systolic pressure; 55 mm. diastolic pressure; pulse pressure, 50; right arm, 110 mm. s.p.; 55 mm. d.p.; p.p. 55. Lying, left arm, 105 mm. s.p.; 55 mm. d.p.; p.p. 50; right, 110 mm. s.p.; 55 mm. d.p.; p.p. 55. She had a rhythmic pulse action but it was small, compressible, 94 beats a minute when sitting and 100, lying down. The parallels of heart, pulse, and blood pressure showed the circulatory system to be generally below par. Her temperature was normal. The respiratory range was decidedly limited and the presence of isolated rales in the upper lobe on each side together with questionable dullness at the right apex, raised the question of incipient tuberculosis. Reinforced auscultation and percussion failed to bring out "cog-wheel" breathing or other symptoms, and enough sputum for testing was not obtained. Abdominal examination furnished clear evidence of another condition: It was generally hypersensitive, although deep pressure showed this to be more marked about the pelvis, umbilicus, and liver. The latter organ extended three inches below the ribs (one inch further, by Abrams's manœuvre) and a little beyond the middle line. The thin abdominal wall was flabby and relaxed. Partaking of food increased her sense of epigastric weight and fullness that was always present, being probably due to increased congestion of vessels and organs of the abdomen. There was more intestinal flatus than normal but it did not greatly distress her. Bowel movements had for years depended on the nightly dose of a purgative. Splanchnoptosis was present in but slight degree. Percussion dullness below the umbilicus and in the erect posture was plain and did not need prior recumbency to elicit. The renal and menstrual functions acted normally.

Here, then, existed a typical instance of splanchnic neurasthenia with possible complication of incipient pulmonary tuberculosis. A preliminary course was given of the static wave current with an 8 inch by 10 inch flexible metal electrode applied to the upper abdomen. This sought the local contractile action upon the relaxed abdominal organs and tissues as well as the general tonic effect by exercise of unstriated muscular fibre everywhere. This alternated, with vibrassage of definite vertebral areas, for reflex action upon the affected organs: Contraction of the distended liver (the "liver reflex"

*Read before the Section in General Medicine, College of Physicians, Philadelphia, January 28, 1915.

¹Albert Abrams: *The Blues*, 1904; 4th ed., 1914.

²*Archives of Diagnosis*, Jan., 1913, pp. 1-5.

of Abrams) was attempted by applying a double prong vibratode upon the first, second, and third lumbar intervertebral spaces. By a like application below the seventh cervical vertebra, the general vasomotor apparatus is stimulated. For increasing the tone of the splanchnic vasomotor system and so reducing splanchnic venous congestion vibrassage of the intervertebral spaces from the second to the eighth thoracic vertebra, inclusive, was given. Later the more active agent, the rapid sinusoidal current, was substituted—a 5" by 6" felt electrode being applied over the sacrum and an interrupted sponge electrode over the spines of the vertebra already described. To improve the power of the abdominal wall muscles, sponge electrodes were held beneath each lower scapular angle, the slow sinusoidal current of about 80 m. a. and 60 volts being in action, and rhythmic contractions were obtained. To redevelop normal action of the intestinal muscular layer, its peristaltic action was imitated by the slow sinusoidal current, with felt 3" by 5" electrodes in position over the umbilical and left inguinal regions. This modality may require the addition of the static induced current, an 8" by 10" flexible metal electrode resting upon the abdomen and a 3" rodlike metal electrode maintained in the rectum. Relief was noted at each visit and the patient has made fair progress, considering her extreme symptoms when first consulted.

CASE II. An unmarried woman, aged thirty-six years, was referred by her physician for an acutely painful area midway between the posterior scapular margin and the fourth thoracic vertebra. There was a history of long-continued nursing of an invalid mother and other relatives until this exhausting effort and sedentary life, with but little diversion, had finally resulted in her present neurasthenic state. The dull ache to the left of the fourth thoracic vertebra was a localized neuritis of probably traumatic origin, an occupation neurosis, and associated with a mild brachial neuritis of the same side. This had grown more accentuated during the past five weeks. Lancing pains starting from the aching spot darted down the outer side of the left arm. It was more especially on this account that she had been compelled to remain at home practically since last spring. The neurasthenic facies was unmistakable. Once full of energy and active in her home duties, each effort now quickly tired her, and this debility was aggravated by the back and arm pains. Her height was 5 feet 4 inches and weight 130 pounds. The blood pressure was practically that of the first case. Examination of the gums showed one defective tooth; the right upper rear molar. Many years ago this had been "filled" after nerve extraction but, as no pyorrhea was evident, there was probably no deleterious influence on the general health. Intestinal indigestion had existed for many years, as indulging in food relieved her abdominal distress, but annoying flatus and discomfort returned some two hours later. This state coincided with lifelong enteric torpor, a mild daily purgative being always required. Objectively the abdomen was generally sensitive; the liver moderately enlarged and tender; the lower abdominal area of splanchnic percussion dullness, plain even without previous recumbency. The cardiosplanchnic phenomenon was present. Splanchnoptosis was plainly evident.

After application of the static wave current by an angular metal electrode to the left side of the neck, thus directly over the brachial plexus, there followed a forced draft of electrically heated air against the aching spot already mentioned for the acute pain. The latter modality alternated with the rays from a 500 c. p. hooded incandescent lamp for its radiant light and heat effect. The symptoms dependent upon congestion of the splanchnic vessels

were combated by vibrassage and sinusoidalization of the intervertebral spaces as described for the previous case, with the static wave current applied to the upper abdomen by an 8" by 10" metal electrode and with the slow sinusoidal current by one sponge electrode above the umbilicus and a felt 4" by 5" electrode in the left inguinal region. Should normal defecation not soon result, the static induced current will be substituted. The Rose bandage or some other abdominal support may be temporarily required. When the flabby abdominal wall muscles fail to regain quickly a more normal tone, the slow sinusoidal current, with electrodes placed below the scapulæ, may be needed.

CASE III. A man, aged fifty-five years, married, and with healthy children, responsible partner in a large commission firm, was referred for a condition of physical and mental fatigue. His medical attendant had successfully treated him at Atlantic City, N. J., last summer, along lines already mentioned, for a type of splanchnic neurasthenia; evidences of intraabdominal vascular congestion, hypotension, and of lowered vitality disappeared after about one month's applications. Under stress of present business depression there had been a return of these symptoms. He was 5 feet 11 inches tall, weighed 159½ pounds, and presented the typical neurasthenic countenance and attitude. Any detailing of his symptoms would be largely a repetition of those given for the preceding cases. The same holds true of treatment except that, because of evident intestinal toxemia, radiant light and heat were more frequently employed over the abdomen while automassage and active exercises, aiming at redevelopment of enfeebled muscles so as to increase intraabdominal pressure, were insisted on for daily home use.

These patients show the presence of a type of neurasthenia in which abdominal muscular relaxation coexists with splanchnic venous congestion, lowered tone of the sympathetic nervous system starting the vicious circle. Unless correctly differentiated and treated, such patients slowly but surely pass into hopeless invalidism.

This type of neurasthenia improves coincidentally with increased tone of the splanchnic vessels. Treatment is essentially that by specific physical methods in suitable combination.

22 SOUTH TWENTY-FIRST STREET.

CHRONIC NEPHRITIS.*

Causes and Treatment.

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I cannot attempt to review a fraction of the experimental work which has been done in chronic nephritis; but shall present the matter in the light of clinical experience, which I trust may be helpful at least to the general practitioner. Among the great diseases which modern medicine is trying to attack scientifically, nephritis, although perhaps the most frequent, insidious, and deadly, seems to be the least feared of all. In considering its causes, we must include all the causes of acute nephritis since a large percentage of chronic nephritis follows the acute forms. All acute infectious diseases and high febrile disorders cause moderate albuminuria, owing to bacteria or their toxins, or disordered protein

*Read before the Bronx Medical Society, December 9, 1914.

metabolism which produces cloudy swelling and degeneration of the cells in the glomeruli and tubules of the kidney, but it is only in scarlet fever, and to a less extent in diphtheria, that acute nephritis occurs, although in long continued febrile tuberculosis nephritis may supervene. It is not believed that bacteria themselves attack the kidney tissue, except in rare cases of pyemia through emboli, or in that of unilateral pathogenic bacterial invasion, which may be urogenous from the pelvis of the kidney, lymphogenous from the gastrointestinal tract, or hematogenous from the blood, and which produces a veritable infection of the whole kidney.

Syphilis is now recognized as not an uncommon cause of both acute and chronic nephritis, but while it is possible to produce nephritis by large doses of mercury, yet in therapeutic doses it is rarely if ever the cause.

CAUSES.

Pregnancy is a cause dreaded and feared by most of us. Increased abdominal pressure affecting the kidney vessels, toxalbumin from the placenta are unproved theories. When we consider the extra strain on the kidneys from general and placental metabolism, increased gastrointestinal disturbances, and the effect of exposure and over fatigue, one need scarcely look farther for a legitimate cause.

Exposure to cold is by no means a rare cause of acute nephritis, and the reason is not difficult to understand. The function of the skin has temporarily ceased and digestion stops. Toxic materials in large quantities are rushed to the kidneys, which fail in their function and become the seat of a toxic inflammation.

Chemical irritants. Everyone is familiar with the effect of large doses of substances like cantharides, turpentine, and phenol, but practically mercury bichloride poisoning is the only one which is commonly met with, and for a few years it has occupied the stage very prominently. Chronic lead poisoning, too, is still a frequent cause of chronic nephritis. Alcohol is often stated as a cause of nephritis, and a good deal of misapprehension exists as to the role it plays, although by this time the experiences of ages should make us quite familiar with its effects. Acute alcoholic intoxication to complete stupefaction, or a drunken spree of several days' duration, does not produce nephritis, and it does not seem possible to give enough alcohol short of lethal doses to produce it; the probable reason being that most of the alcohol is excreted by the lungs and very little by the kidneys. In chronic alcoholism with cirrhosis of the liver, cardiac insufficiency and nephritis frequently complete the picture, though it is quite remarkable how invulnerable the kidneys may be in this condition. Chloroform and ether very rarely produce nephritis in healthy subjects, but frequently latent or chronic nephritis is excited by their administration.

Diabetes is frequently associated with nephritis. Excessive glucose may irritate the kidneys, but more likely toxic proteins. Acetone and diacetic acid from excessive nitrogenous feeding is the true cause.

Gout is a well known agent in chronic nephritis, owing to the end products of incomplete protein metabolism. When we have considered all these

causes in connection with chronic nephritis, we shall find that there is a large proportion of cases, one may roughly say fifty per cent., in which no antecedent cause may be determined. Most of these patients live under good hygienic conditions, many indeed seem to live exemplary lives, many are women who do not dissipate and yet present all the classical symptoms of Bright's disease. It is the etiology of these cases which is one great problem of today. I have addressed myself to a close historical and clinical inquiry and examination of a large number of such cases. I have looked for focal infections of various kinds from which bacteria or their toxins might enter the blood and affect the kidneys without being able to establish such an etiology, and finally have been driven to believe that the constant absorption of bacteria or their toxins from the mouth and intestinal canal can produce chronic nephritis. We can well imagine that every day the bodies of dead or living bacteria and their toxins must be excreted by the kidneys. These if excessive or of an irritating nature must excite inflammation and damage the renal epithelium; they probably account for the faint traces of albumin which we so commonly find in healthy subjects, and which ultimately may lead to chronic nephritis. We do not have to stretch our imagination to know that much of our modern preserved and refrigerated food forms a good medium for the growth of bacteria, though these may not be putrefactive. We also know that many people eat too much of a highly animal protein diet, whose end products may in themselves irritate the kidneys. We could multiply the predisposing causes, such as bad habits in eating, bad personal hygiene, and lack of outdoor exercise, not forgetting that much abused condition known as "intestinal stasis."

TREATMENT.

In considering the treatment of chronic nephritis, one must bear in mind the anatomical structure and physiological function of the kidney, the main features being the glomeruli connected to the long convoluted tubules, supported by a stroma of connective tissue. The afferent artery to the glomerulus carries the blood under high pressure; this pressure and a possible contractile action of the glomerulus actually drive the watery elements of the serum into the excretory ducts, while the concentrated blood is carried under low pressure to the tubules whose selective excretory action separates the mineral and organic solids and some water. In pathological conditions the glomeruli become thickened, compressed, or obliterated; the tubules are also compressed and the cells degenerate. The blood is propelled to the kidney under increasing force, the orderly seepage in the tubules is gone, and the result is much water with a comparatively small amount of solid. The blood tension usually increases till the heart begins to fail, when general stasis takes place with small excretion from the kidney and general dropsy. In the main the problem is largely one of providing increased circulation to compensate for diminished function of the renal epithelium. The cause of arterial hypertension is not entirely known, but we do know that obstruction caused by endarteritis, swollen renal epithelium, and excessive connective tissue pro-

duction must be compensated for by increased work of the heart and heightened arterial pressure, but the sudden or spasmodic attacks of high blood pressure suggest that the adrenals which normally control blood pressure, owing to an intimate and necessary hormone produced by the kidney, may have lost this power of regulation, either because of excessive production of epinephrine or diminished excretion. The general tendency of our belief today is that arterial hypertension is a compensatory process, and the argument for it in certain cases seems very sound, but the study of many cases shows that in at least twenty-five per cent. of chronic nephritis hypertension does not exist, even though mechanical conditions would seem to demand it.

The escape of albumin from the blood into the urine seems to offer many difficulties in experimental explanation, but in all inflammatory processes where cellular elements are destroyed or damaged, the escape of serum from bloodvessels is a regular event, therefore when an organ like the kidney, which is a true filter, has its cellular barriers vitally impaired, we should expect albumin to leak from the vessels just as it does, and the pathological histology in these cases shows that the lining cells of the tubules and glomeruli are affected; while in the cases of nephritis without the exudation of albumin, the connective tissue stroma is principally affected. It hardly seems necessary to accept the theory of Martin Fischer, that the cause of albuminuria is an acidosis of the kidney tissue which destroys a colloidal cement between the cells. An intelligent treatment of nephritis means complete knowledge of its clinical varieties. Much has been done to mystify and complicate our understanding of this disease by pathologists, theorists, and those who advance our knowledge by research work and animal experimentation. The following are group types which we commonly meet with:

Group A. Cases with marked hypertension and normal urine except for faint traces of albumin and a few hyaline or granular casts. These cases go for years unsuspected unless detected by a physician, usually during examination for life insurance or for other troubles. Such patients, as a rule, have large appetites and enjoy life, but finally have apoplexy, cardiac insufficiency, retinal changes, and occasionally uremia.

Group B. Cases with marked hypertension, large quantities of urine, low specific gravity, marked traces of albumin, and many hyaline or granular casts. These patients may go on for many years in fair health, but they usually suffer with frequent severe headaches, vertigo, and gastrointestinal symptoms. Acute uremia is a frequent and often dramatic end. Cardiac insufficiency retinal changes complete the picture. Anginal attacks are not infrequent.

Group C. Cases with no increase in blood pressure, faint traces of albumin with other constituents of urine almost normal. These cases may be a little anemic; digestive disturbances are frequent. Anginose attacks may be a feature, headaches and vertigo are frequent. The course is usually slow over many years, but at any time may pass into a more acute stage and end fatally from renal insufficiency.

Group D. Cases with normal, moderate, or marked hypertension, with very marked albuminuria and diminution of all urinary solids, especially chlorides. These patients are regularly anemic, suffer from dyspnea and dropsy, and have pronounced retinal changes. The course is short and the subjects die in a few years from chronic uremia and cardiac insufficiency. Occasionally they recover.

These are all the important and essential groups which seldom show much variation, but individual cases may have features which overlap and complications which change the clinical course very much. Etiology, such as syphilis, lead, gout, diabetes, produces its stamp. Myocardial changes may appear early from coronary arteritis or thrombosis, and the symptoms become more cardiac than renal. Acute uremia, without warning comes in some cases, apparently with much less cause than in others. Retinal hemorrhages and retinitis are prominent symptoms in some cases. Gastrointestinal symptoms may be severe and modify the course of individual cases in all the groups.

We now come to methods of treatment.

In Group A we find the most hopeful class of cases to deal with; these are primary, originating from causes which we have already discussed. Are we able to cure a patient around middle age with practically no symptoms, but with a blood pressure of over 200 and a heart already considerably enlarged with a greatly accentuated aortic sound? I can frankly say that in a fair percentage of these cases the blood pressure can be reduced and the general health and physical signs made to approach the normal, but the regime and mode of life have to be strict and exacting, therefore the majority of such cases are only halted in a steadily progressive course. Diet, hygiene, and drugs are all necessary in the treatment.

Diet is abused as much by the physician as by the patient. In our scientific enthusiasm or pride, we attempt through the estimation of the total nitrogen secretion, to prescribe a diet in portions and ounces over a weekly period which will establish a correct nitrogen balance and be of sufficient caloric value. This experiment is a costly one and can be done only in hospitals or sanatoriums with well equipped laboratories; even then the human element defeats our plans, and diet soon becomes a matter of compromise. The best scheme of diet is at first to forbid all meat, eggs, cheese, tea, coffee, and alcohol, and order a diet of milk, vegetables, bread, cereals, and fruit, with a moderate amount of butter, oils, and sugar. It is much better for the patient to make a list of the food eaten, which at regular periods should be reviewed by the physician who, after weighing the patient and considering the general condition, can point out what particular elements should be increased or diminished. A minimum amount of protein is essential and a fair though not excessive amount of water, but great insistence should be placed on the freshness of all food and the avoidance of excesses in amount and irregularity in eating.

Moderate outdoor exercise, a daily warm bath with friction to the skin, and the avoidance of excessive work, worry, and fatigue are of prime importance. Excessive poorly ventilated clothing is

an evil. A temperate even climate is the best, but inasmuch as the treatment extends over years, most patients have to adjust themselves to their home climate, always being cautioned to avoid long or severe exposure to cold and excessive fatigue.

The vasodilators, depressors of arterial tension, such as nitrites, aconite, chloral, should not be employed regularly or for long periods of time; occasionally they are of symptomatic benefit, but have no curative action. Sodium bicarbonate, grs. xx, calcium glycerophosphate, grs. v, sodium phenol-sulphonate, grs. v, is an alkaline combination of great benefit to the stomach if taken in a cup of hot water fifteen minutes before meals. Hexamethylenamine grs. viiss and sodium sulphooleate and ichthoform, grs. v, after meals, have an effect on the gastrointestinal canal and may destroy certain bacilli of the colon group circulating in the blood and passing to the kidney. A moderate saline cathartic such as Epsom or Rochelle salt, is a good thing to take on rising. An enema before retiring, to empty the colon and prevent toxic absorption during the night, is a highly beneficial procedure.

The foregoing are the main points in the treatment of Group A, if they can be employed; if the patient is thorough and the physician emphatic, great benefit will result. Group B, with persistent diminution in nitrogen excretion accompanied by toxic symptoms, are much less favorable cases, but they too respond to the same treatment. Group C, with low tension and slight albuminuria, respond to tonics, good wholesome food, hygiene of the skin, and outdoor life. When anginous symptoms are present, nitroglycerin or the iodides are of benefit. Group D, with normal moderate or high arterial tension, but with great albuminuria and anemia, are best treated by decapsulation of the kidney as advised by Edebohls. They require a very mild, even, and dry climate, rest, and a simple nourishing diet.

I will not attempt to discuss the treatment of the terminal stages of chronic nephritis, evidenced by apoplexy or cardiac and renal insufficiency, but in the plethoric cases with marked hypertension, venesection with removal of from 250 to 500 c. c. or even more of blood, is of great benefit, and in certain of these cases periodical blood letting is highly advisable.

There are many scientific facts which may be determined and which throw light upon the action and efficiency of the kidneys. The phenolsulphone-phthalein functional test of Geraghty and Rowntree is of more value in comparing the separate work of the kidneys, but it is also a useful efficiency test for general work, although we must always remember that the kidneys seem to have periods of rest or laziness, followed by periods of activity and increased function both in health and disease; and of all our remedies, we never can tell which may give the fillip necessary to excite action.

The estimation of the chlorides and the theory of the French school led to a period of salt-free diet, this fascinating theory being that the serum exuded into the tissues had become hypertonic from chloride retention, and if the circulating blood became hypotonic from salt starvation, it would attract the serum from the tissues and produce marked diuresis.

There can be no question that diuresis very often follows salt starvation, but in these cases changes in diet, rest in bed, diuretics, and cardiac stimulants are instituted at the same time. I have absolutely failed to play at will on the kidney secretion in renal dropsy, either by salt starvation or salt feeding as has been advocated recently. I have seen cardio-renal dropsy continue for months unrelieved by any kind of diuretic or heart stimulant, then having abandoned hope and adopted morphine to relieve the great distress of patient, have seen the dropsy entirely disappear. As a matter of fact, the kidneys have periods of inaction and nothing seems to stimulate them, while at other times they can readily be acted upon by various remedies.

The comparison of the blood uric acid content with that of the urine is a more recent laboratory test, but its clinical value has not been established.

The estimation of the total nitrogen output when the patient is placed on the special diet of known nitrogen content may give results which are of value if the test is made over a considerable period of time, but it is quite unnecessary as a regular routine for the efficient treatment of chronic nephritis. The clinical symptoms, the quality of the blood, the blood pressure and efficiency of the heart under work, digestive efficiency, the daily amounts of urine passed, and the ordinary findings of uranalysis constitute a far better guide.

40 WEST SEVENTY-FIRST STREET.

THE MEDICAL RECORDS OF THE INDIAN CAMPAIGNS OF GENERALS ST. CLAIR, HARMAR, AND WAYNE.*

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Records.

The circumstance which made the colonization of the middle west a rather slow and extremely dangerous process, was the belligerent attitude of the Indian tribes, who resisted the onward march of the early settlers and were on the warpath almost continuously. There were no systematic precautions taken by the Government until a number of military posts had been erected, which made it possible to use the regular troops of the Government against the wily and ever alert red man. The wars with the Indians lasted until the enactment of the Treaty of Greenville, August 3, 1795. The centre of radiation of energy during these wars was Cincinnati, which, during the early days, was a military station of great importance. Fort Washington, in Cincinnati, furnished most of the soldiers for the different campaigns. All the events of those early times were intimately connected with the founding of Cincinnati and with the military activity of the Federal troops who were stationed in Fort Washington. The twenty-eighth day of December, 1788, is generally conceded to have been the date of the first settlement of Cincinnati. On this day, Israel Ludlow, a surveyor in the employ of a New Jersey land

*Read at a public meeting of the Darke County Medical Society and the Ohio Historical Society, Greenville, Ohio, November 12, 1914.

company, landed at what was known in the early times as Yeatman's Cove (now the foot of Sycamore Street). He was accompanied by about twenty persons, who proceeded to erect three or four log cabins, and thus laid the foundation of the future Queen City of the West. The land was part of 600,000 acres lying between the two Miamis and purchased from Congress by John Cleves Symmes, a New Jersey congressman, who sold parts of his "Miami Purchase" to Benjamin Stites, of Pennsylvania; Matthias Denman, of New Jersey; Colonel Robert Patterson and John Filson, of Lexington, Ky. The present site of Cincinnati had been visited in September, 1788, by Symmes, Patterson, Filson, and Denman. Denman decided to lay out a town at a point where the old Indian war-path from the British garrison at Detroit touched the Ohio river, opposite the mouth of the Licking River. Filson, who was a surveyor by profession and a schoolmaster by occupation, invented a fantastic name for the future town: "L-os-anti-ville," or rather "ville-anti-os-L," the town opposite the mouth of the Licking, a polyglot mixture of questionable composition. W. H. Venable tells us that

John Filson and companions bold
A frontier village planned
In forest wild, on sloping hills,
By fair Ohio's strand.

John Filson from three languages,
With pedant skill did frame
The novel word, Losantiville,
To be the new town's name.

John Filson met his death at the hands of the Indians, at least he was missed one day and was never found. It is supposed that he was killed by the savages. He was, as I have stated, one of the first white men to set foot on the soil upon which subsequently arose the city of Cincinnati. He gave the site a name and was about to lay out the projected town when his career came to a sudden end. To the physicians of Cincinnati the sad fate of John Filson is of peculiar interest. It is not generally known that he had been a student of medicine for over a year, and was looking hopefully into the future when he would be able to quit teaching and surveying, and settle down as a physician in Lexington. John Filson was, therefore, the first medical man whose name is associated with the early history of the middle west.

In 1790, the Government commissioned General Arthur St. Clair to go to Fort Washington as the commanding officer of the troops stationed there. St. Clair was a Scotchman by birth, and a graduate of the University of Edinburgh, where he began the study of medicine. Subsequently he continued his medical studies in London under Hunter. A sense of adventure prompted him to come to America, where he served with distinction in the Revolutionary war. He was an enthusiastic member of the military order of the Cincinnati and named the village "Cincinnati," abolishing John Filson's euphonious but badly coined Losantiville. Thus the village received a new name from the hands of another man who had been a medical student.

The military post of Fort Washington was abolished in 1808. During the eighteen years of its

existence many military surgeons, surgeon's mates, and apothecaries came to Cincinnati and combined their military duties with private practice among the settlers. Most of these military surgeons were fairly well educated, but not one possessed a degree in medicine. Even the distinguished Dr. Richard Allison, who resided in Fort Washington and was the surgeon general of all the armies that the Government sent against the Indians, was not a graduate in medicine, but a surgeon's mate. Daniel Drake tells us about several of the military medical men who enjoyed a vast reputation among the early settlers and rendered good service to their country on the field of battle.

Among the officers stationed at Fort Washington was Ensign William H. Harrison, born in Virginia in 1773, who had attended medical lectures at the universities of Virginia and Pennsylvania. He entered the army as an officer of the line instead of the medical staff. Drake tells us that Harrison's medical knowledge enabled him frequently to afford relief to those who could not, at the moment, command the services of a physician, and also inspired him with an abiding interest in the progress of the profession. This he successfully displayed more than twenty-five years afterward, when a member of the Senate of Ohio. The bill for establishing the Commercial Hospital and Lunatic Asylum of Ohio met with much opposition, against which he exerted himself with his usual characteristic energy. Harrison afterward was the first president of the first board of the Medical College of Ohio. His record as a statesman and as a soldier ("Old Tippecanoe") is part of the history of his country.

Among the medical men who served during the Indian campaigns under St. Clair, Harmar, and Wayne, two deserve to be remembered on account of the splendid record they left, and in no less degree on account of the fact that they remained in Cincinnati after they had left the military service, and in this way helped to lay the foundation of our profession in the southwestern portion of our State. One was Richard Allison, the other John Sellman.

Richard Allison, born near Goshen, N. Y., in 1757, was not a graduate, but had served throughout the war of the Revolution as a surgeon's mate. He reentered the army and acted in the capacity of surgeon general in the campaigns of Generals Harmar, St. Clair, and Wayne. For a short time he was stationed at Fort Finney, opposite the city of Louisville. In one of the battles during St. Clair's campaign, he was greatly exposed; for he was obliged to leave the wounded and mingle in the fight. His horse received a bullet in the head. It remained imbedded in the skull; and, when riding him through the village in after times, he would jocosely remark that his horse had more in his head than some doctors he had known. Whenever stationed here, he gave such assistance to the people of the village as made him a general favorite; and after his resignation many of them employed him, when his services were no longer gratuitous. After an honorable career as an army surgeon, he retired in 1798 and built a house called Peach Grove, at the present corner of Fourth and Lawrence Streets. In 1799 he removed to a farm on the Little Miami, where

he intended to indulge his taste for agriculture and do a little speculating in real estate. In 1805 he returned to the city and kept an office at the southwest corner of Fourth and Sycamore Streets. He died in 1816, aged fifty-nine years. He was universally beloved on account of his zeal and gentle manners. Charlotte Chambers Ludlow, a daughter-in-law of Israel Ludlow, recalling a severe spell of illness through which she had passed, refers to Doctor Allison in one of her letters: "Doctor Allison, unwearied in kindness, left me but seldom. One night he had been aroused from sleep by an impression of my sudden danger and was irresistibly impelled at this gloomy hour to leave his bed and ride five miles in the dark night over rough roads. By his admirable skill the dread hand of death was happily averted." Mrs. Ludlow lived at that time in Ludlow Mansion, in Cumminsville. From all accounts, Doctor Allison must have been an exemplary man and splendid physician. He is buried in the old Wesleyan Cemetery in Cumminsville, where his monument, with the following inscription, can still be seen: "He was an ornament to his profession, a liberal benefactor to the poor, and a tender parent to the orphan. In his bounty the distressed found relief, and in his generosity unfortunate merit obtained refuge. Weed his grave clean, ye men of genius, for he was your kinsman; tread lightly on his ashes, ye men of feeling, for he was your brother."

John Sellman, born in Annapolis, Md., in 1764, came from good family, and received an excellent general education. He entered the army as a surgeon's mate and arrived in Fort Washington with General Wayne in 1793. He resigned in 1794, and took up his residence on Front Street, between Sycamore Street and Broadway. He continued in practice until the time of his death in 1827. For several years he was surgeon to the Newport Barracks. This was many years after he had resigned from the army, and shows how highly his skill was valued by the Government. He was not a graduate in medicine, but possessed, in a high degree, a natural talent for the practice of medicine. He took a great interest in the affairs of the profession, and was the staunch friend of the Medical College of Ohio. The latter institution, in 1826, conferred upon him the honorary degree of Doctor of Medicine. There is a record of an amusing trial, as the result of which Susie Newton, employed by Dr. John Sellman, was found guilty of having stolen some scientific instrument from the doctor. This happened in 1798. She stated in defense, that Sir Isaac Newton was her ancestor, and that a scientific turn of mind ran in the family. She simply could not resist taking this instrument. It was, however, found that she had pawned the instrument and had bought one gallon of applejack, for which offense she was fined \$33, and received twenty-eight lashes on her bare back at the public whipping post, which was erected where Fifth and Main Streets intersect.

Drake mentions the name of four other men who were attached to the troops of Fort Washington in a medical capacity and accompanied the soldiers on their campaigns against the Indians. They were all surgeon's mates and became practising physi-

cians in different parts of the country after they left the army. Probably the most interesting figure of all these medical officers was a young Pennsylvania "Dutchman" by the name of Martin Baum, who was an apothecary in Fort Washington and went into a general business in Cincinnati after the expiration of his term of service. He became one of the substantial men in the city and, through his level head, his patriotism, and great wealth, did more for Cincinnati in a material way than other men of the early days. He is remembered as one of the fathers of the Queen City, and occupies a place beside Daniel Drake as a public spirited and constructive pioneer citizen of Cincinnati.

In connection with the share which the soldiers and their medical men had in establishing peace and order in this part of the West, we are only too ready to underrate their services and the value of the latter to the cause of civilization. William McKinley emphasized this point, in the beautiful tribute which he paid to the heroes of the Indian wars, on the occasion of the hundredth anniversary of the Greenville Treaty. He tells us that, from the first settlement at Marietta, until the final great victory won by the army under the command of the brave General Anthony Wayne, there was not a day and scarce an hour when the few white inhabitants over a wide region of the wilderness were not in constant danger of massacre by the Indians. They intercepted almost every boat that passed up the Ohio River. They picked off the few farmers who ventured to attempt to level the forests or cultivate the soil beyond the close proximity of the block house, and, emboldened by their success, frequently attacked the garrisons themselves. They were constantly inspired to attack the Americans, not only by the Indians themselves and their principal chiefs, but by almost equally cruel and vindictive British and Canadian officers of Detroit, and at other lake posts still occupied by them. So numerous were these affrays and massacres and murders that it is assumed by one writer that twenty thousand men, women, and children were killed by the Indians before they finally abandoned the attempt to prevent the occupation of Ohio by the white people.

These statements, made by Governor McKinley on a memorable occasion, indicate that the Indian wars were by no means the unimportant affairs which some of us have been taught to consider them. That the medical men were kept busy relieving suffering at the risk of losing their lives is obvious. Their surgical methods were, of course, largely empirical and not infrequently suggested by the dictates of crude personal prejudices and in not a few instances mixed with the peculiar methods employed by the Indians themselves.

The Indians had some ideas of their own about the proper handling of surgical cases. If a warrior was seriously crippled or fatally hurt, he was quickly put out of his misery and dispatched to the eternal hunting grounds, with all the pomp and ceremony becoming his rank. Nowadays we speak of this as euthanasia. Ordinary injuries were treated by the medicine man. Abstracted from the buffoonery of outward performance and show, the treatment consisted largely of sunlight and water or,

as we should say nowadays, the patients were treated phototherapeutically and hyriatically. All kinds of mysterious draughts and poisons were put into the patient's stomach, while loud prayers, incantations, and gyrations accompanied the performance. This was the suggestive part of the treatment. Thus we see that the Indian practice did not differ much from our modern treatment, which is also a mixture of therapeutics and suggestion. After all, the main consideration in every case is the final outcome. Neither the Indian medicine man nor the modern physician allows the pangs of conscience to disturb the equanimity of his spirit, and does not lose any sleep over the question whether the medicine or the suggestion has produced the favorable final result.

The Indians were believers in open bowels, and had some very positive notions about the proper diet of man in health and disease. While they were on the warpath, they were very attentive to intestinal excretion and very temperate in the amount of food consumed. They tried to avoid distention to prevent danger from gunshot or arrow wounds in the abdomen. They reasoned that a man's bowels were easily pierced and lacerated if there was much distention. People with flat bellies would be less likely to be dangerously hurt. In the treatment of open wounds the Indian believed in exposure of the wound to light and air and occasional immersion in water, which the medicine man would perform with much circumstance and ceremony. The Indians believed in the therapy of rest in traumatic cases. Men who were injured in battle were not removed, but allowed to remain undisturbed for many days. The women were employed in looking after the sick, in keeping with the directions given by the medicine man. Thus the idea of first aid, of field hospital attention, and of trained nurses was foreshadowed by the grim warriors of the forest and the prairie more than a hundred years ago.

The medicine man of an Indian tribe was a mighty person among his people. Abstracted from the mass of superstitions and vagaries, principally religious in character, with which the medicine man confounded his patients, there was much empirical knowledge applied by these men, who are, in more ways than one, the original founders of what later on became the botanical system of practice in this country. Rafinesque, Wooster Beach, and Samuel Thomson introduced many distinctly Indian notions into their systems of therapeutics. In many of the old books we find very respectful references to the medical notions of the Indians, showing that the empiricism of the Indian medicine man must have had some value in practice, if not in pathology. Drake refers to the Indian medicine men who were very much in evidence during the Indian campaign and took good care of their sick or wounded, while, of course, the sick or wounded white man, found helpless on the battlefield, could hardly expect any mercy at the hands of the savages.

It might not be out of place to mention some of the drugs that were highly esteemed by the Indian medicine men, and much used by them and their white colleagues during the wars leading up to the Greenville Treaty. Ipecac was much esteemed by the Indians, and was popularly known as the Indian

physic. The Indians used it, in the form of a tea, for many disorders of the alimentary canal.

The scurvy grass root was considered an excellent cleansing agent for the bowels. When a tonic effect was desired, it was combined with colombo or Miami root. The black snake root was considered a good kidney medicine and hepatic eliminant, and frequently employed in fevers, especially of the malarial variety. Corn snake root was thought to be a great blood purifier and was used in cases of snake bites and when a person had been wounded with a poisoned arrow. The old army surgeons thought much of this herb and used it extensively.

Mountain mint was the diuretic *par excellence* and always used in the treatment of wound fever. The horse balm was much esteemed on account of its sweat producing action. A poultice of white pine was employed in the treatment of wounds and sores.

Blueberry tea was considered a good antispasmodic, and was indulged in liberally by the Indian squaws before confinement. Pond lily root was the Indian specific for the king's evil and similar conditions. To reduce fever the Indian used sage tea.

The examples quoted are sufficiently suggestive to illustrate the therapeutics of the medicine men. Their materia medica consisted of emetics, purgatives, diuretics, and diaphoretics, i. e., of drugs to stimulate excretion and elimination. Whatever we may think of the Indian notions about disease, there can be no doubt about the good common sense principles of their practice. They agree with the fundamental directions given by Hippocrates in connection with the overtowering importance of the emunctories. I imagine that many an ultrascientific mind could profitably descend from the clouds of speculation to the *terra firma* of good common sense by a little attention to the crude notions entertained and applied by the Indian medicine men and, in no less degree, by the early surgeons who accompanied the Palefaces in the early days. The Indian was a practical hydrotherapist. He believed in cleanliness and enforced it persistently by the liberal use of water externally and internally. Water was the ubiquitous remedy in the treatment of surgical conditions. If we ignore accidentals and confine ourselves to the essential features of surgical practice, we may come to the conclusion that cleanliness is really not a recent invention. Perhaps the original medicine men of the Indians, and with them the crude empirics of Fort Washington, did know a few things in a simple and primitive way, that today, clothed in gaudy terminology, are presented to us as something new and unheard of. Perhaps Hippocrates did not miss it much when he told us, that "life is short but art is long" and perhaps Ben Akiba, the wise old Oriental, is not altogether in error when he opines that, after all, "there is nothing new under the sun."

628 ELM STREET.

Diagnosing Fracture.—According to the *American Journal of Surgery*, after injury to an extremity, localized tenderness or extensive ecchymosis is sufficiently suggestive of a fracture to make an x ray examination desirable, even though all other signs are absent. This is a wise procedure in many instances.

THE NORMAL NASAL SEPTUM AND THE PATHOLOGY OF DEFLECTIONS.*

BY FIELDING O. LEWIS, M. D.,
Philadelphia.

The nasal septum forms the internal or median wall of the nose, the anterior superior portion of which is formed by the vertical plate of the ethmoid bone; the posterior inferior portion by the vomer; anteriorly is the quadrilateral cartilage, which articulates with the bony portion of the septum. It is attached above to the frontal crest of the frontal bone; below to the nasal crest of the hard palate; and behind and above to the sphenoidal crest and rostrum. It is covered with a highly vascular mucous membrane, which is referred to, in conjunction with the mucous membrane of the entire nose, as the Schneiderian or pituitary membrane, and is closely adherent to the periosteum and perichondrium, over which it lies. Anteriorly the mucous membrane has a ciliated type of epithelium, which greatly assists in the performance of its normal function. Its wavelike motion sweeps bacteria laden mucus toward the orifice of the nose, thereby lessening the possibilities of infection; this should be remembered in operations performed in this region, so as to preserve as much of the mucous membrane as possible. Its blood supply is derived from the ethmoidal branches of the ophthalmic artery, anteriorly and superiorly, a branch of the internal sphenopalatine artery, which anastomoses with a branch of the superior coronary artery, known as the artery of the septum, and which, in my experience, has given rise to some very troublesome hemorrhages in operations on the nasal septum. It has also received the title of the "artery of epistaxis." The junction is often indicated by a varicose leash of vessels situated about a quarter of an inch within the vestibule, and a quarter of an inch above the floor of the nose. This area is known as Kiesselbach's area, and it is shown by statistics that at least ninety per cent. of the cases of nosebleed originate from this point.

A normal straight septum is seldom seen in civilized people. In the savage races, Speiss and others have found the reverse condition. Sinclair Thompson gives two causes for its frequency in Caucasians; first, the increase in the cranial development and enlargement of the facial angle; and, secondly, the admixture of different races. The rarity of deflections among less civilized nations has been attributed to the purity of these races, in whom the faces are as similar in their regularity as their septums. This does not apply, however, to the Hebrew race, which, although of pure strain, is very apt to suffer from deformities of the septum. Other predisposing causes are diathesis, as syphilis, tuberculosis, rickets, and cretinism.

Age is held by some to be a cause. Deflections are said to be found frequently in children after their second dentition. They are found more frequently in males than females, perhaps because of the greater exposure of the former to injury. There is a great diversity of opinion as to the chief exciting cause of deviations; most authors agree, however, that the greatest majority of them are prob-

ably due to irregular development; that is a disproportion between the growth of the septum and the growth of the nose; one growing comparatively too fast or the other too slowly.

It is quite obvious that when a septum is seen to be greatly deflected from its normal position, it is too long for the vertical diameter of the nose. The development of these structures is no doubt greatly influenced by the causes of nasal obstruction, with its associated mouth breathing; as adenoids in early childhood produce a high, narrow, arched palate, and an undersized receding upper jaw, consequently the floor of the nose is raised, the vertical diameter of the nose is diminished, and the septum is crowded out of its proper abode; so if the septum continues to develop, it must be distorted.

Talbot states that malformations of the septum are due to neuroses or stigmata of degeneracy, which result in irregular development of the facial lines. There is no doubt that excessive development of the middle or inferior turbinates causes deviations in some cases, by pushing the septum to the opposite side. The same is true of nasal tumors, polypi, and foreign bodies. This was forcibly impressed upon my mind by seeing recently, in Doctor Kyle's clinic, two cases of rhinoliths of long standing, in which the opposite nostril was almost completely occluded by the long continued pressure of foreign bodies. Trauma is an undisputed cause in a great many cases, especially in the cartilaginous portion; but it is extremely hard to believe that a blow over the nose can fracture the perpendicular plate of the ethmoid or the vomer, without causing an external deformity, protected as the bones are by the solid bony framework of the nose and the firm arch of the nasal bones; moreover, it would be sad to think that trauma is a more frequent cause in civilized than in uncivilized nations, and it has been shown that it occurs about eight times more frequently in the former than in the latter. In a great many cases there is a history of trauma, but no doubt this may occur in childhood, when the bones are soft, and long forgotten before its consequences become evident. It is not uncommon to see cases in which there are deviations of the vomer resulting from trauma. I recall one case in which there was complete occlusion of the right posterior naris, by the fracture of the vomer, resulting from a blow on the nose during childhood.

Various classifications of deviations are found; Ballinger divides them, first, into cartilaginous deviations comprising the anterior portion, which is turned outward into the vestibule of the nose and obstructs respiration; an angular deviation, which obstructs both the middle and inferior meatuses; and a vertical deviation, which interferes with proper ventilation; secondly, into osseous deviations, comprising a bony ridge along the upper border of the crista nasalis and the vomer, which encroaches upon the inferior turbinate, causing local irritation and interfering with posterior drainage; deflections of the vertical plate of the ethmoid bone, impinging upon the middle turbinate and interfering with drainage and ventilation of the accessory sinuses on the convex side.

Kyle describes deviations with external deformity, and deviations without external deformity, and

*Read before the Philadelphia Laryngological Society, December 1, 1914.

mentions also the S and C deviations, and deviations with the formation of redundant tissue.

Sinclair Thompson describes deviations, which assume the form of a diffuse or cuplike bulge, a tray, the swelling of a sail, or the inside of a saddle. It is obvious, therefore, that while classifications into groups are perhaps helpful for the purpose of study, they are useless and deceptive in practice, for there are so many irregularities and anatomical peculiarities, that it would be difficult, even impossible, to form a classification which would embrace them all.

I wish to call attention to three forms of deviation, which have been forcibly impressed on me because of the local and constitutional symptoms they produce, the difficulty often encountered in their correction, and the gratifying results obtained after operation. First, a deviation of the quadrilateral cartilage caused by injury, in which the cartilage has been fractured or dislocated in such a manner that the convexity of the deformity obstructs one side of the nose; and the free border of the cartilage, projecting into the opposite nostril, partially or completely obstructs the other side, with perhaps a compensatory hypertrophy of the inferior turbinate, which adds to the discomfort of the rhinologist as well as of the patient. To correct this, the entire cartilage, especially if there is a twisting of the tip of the nose, has to be removed; and this is one type of cases in which I have had excellent results in the transplantation of cartilage. The second one is usually found near the floor of the nose, extending from within the vestibule of the nose to almost the posterior nares, comprising both cartilage and bone, with overlapping of each and a groove on the opposite side, impinging against the inferior turbinate, interfering with drainage and ventilation, and associated with Eustachian catarrh and subsequent deafness; third, a deflection of the vertical plate of the ethmoid, impinging against the middle turbinate, which may be hyperplastic, giving rise to such reflex symptoms as hay fever, asthma, headaches, neuralgic pains about the face, and cough. I have had the privilege of operating in a number of these cases, and the results have been so pleasing, that now when I see such a case, with similar symptoms, I almost feel as if a cure can be assured.

In conclusion, I wish to say that if we teach the children to apply the old adage "shut your mouth and save your life," there will be less nasal surgery.

261 SOUTH SEVENTEENTH STREET.

SOME DIFFICULTIES IN CYSTOSCOPY.*

BY CHRISTIAN C. A. LANGE, M. D.,
New York.

A cystoscopist's troubles are many and varied. With me they began with my endeavoring to learn cystoscopy and extended even to the title of the present paper. My intention was to have the title read, *The Cystoscopist: His Troubles*. My reason for preparing the paper is to attempt to place before the general practitioner some of the difficulties met with in the examination of the bladder, in order

that he may be aided in avoiding, or at least lessening these difficulties by choosing the proper place, time, and opportunity for an examination of such importance to the patient. In this manner only can we avoid, not alone disappointing results of examinations, necessitating needless repetitions, but also much pain and discomfort for the one most interested.

As all are aware, we owe our ability to make exact diagnosis of bladder and kidney conditions mainly to the genius of one man, Max Nitze, who may rightfully be said to have invented the cystoscope in 1879. Long before this, Desormeaux and Bozzini had used endoscopic apparatus for investigating the urinary tract by the aid of reflected light, but their attempts only brought into marked relief the insufficiency and crudeness of our diagnostic powers in kidney and bladder conditions. In other words, we may say that accurate diagnosis in genito-urinary conditions above the prostatic urethra depends on one instrument, namely, the cystoscope. By this it is not to be inferred that cystoscope is a diagnostic penny in the slot machine; you slam in your cystoscope and out comes your diagnosis! Far from it! Nothing is more deceiving and nothing calls for more judgment and experience than correctly to translate the very fantasm of pictures shown through a cystoscope. A slight deviation in the angle at which the instrument is held can change an absolutely normal appearance into a picture of acute inflammation.

In order to be able, therefore, correctly to determine the meaning of these pictures, the study of much clinical material is necessary, and many comparisons of appearances must be made. Here at once the cystoscopist's difficulties become manifest. I do not know whether any or how many of my readers have suffered from a lesion of the urinary tract above the sphincter vesicæ accompanied by frequent micturition, pain, and tenderness, but those who have will add their testimony to mine, that to be cystoscoped once is as much as any martyr can possibly wish or desire. Here is where our continental confrères have a tremendous advantage over us, namely in the mental attitude assumed by their clinical material toward examinations.

The *sang-froid* and willingness with which patients with papillomata, stone, or even tuberculous bladders submit to repeated examinations by students can be ascribed only to either a lack of nervous system or a spirit of altruism beyond all praise. With us, however, this is the marked exception and many an interesting examination must be brought to a premature end to escape verbal or even physical outbursts.

The conditions which interfere with our examinations may be briefly classed under these headings:

- | | |
|----------------|------------------|
| 1. Mechanical. | 3. Anatomical. |
| 2. Physical. | 4. Pathological. |

1. *Mechanical*. Under this heading are included all causes interfering with proper examination due to lack of necessary aids or faults found in the instruments during examinations. In most cases such mechanical causes are due to the cystoscopist taking upon himself the examination without proper equipment, lack of care in inspecting his equipment before use, or endeavoring to oblige a fellow practitioner or patient by making an examination in a

*Read before the Medical Association of the Greater City of New York, December 7, 1914.

place where such equipment is not within easy reach. In fact, a cystoscopy should be made only in a hospital or in a well equipped urologist's office. As stated above, the mechanical faults depend entirely on the cystoscopist and the care with which he prepares for the examination, and can therefore easily be eliminated.

2. *Physical.* The physical are due to possible deficiency in the instrument itself, and are governed by the laws of refraction and absorption of light. To discuss them is beyond the limits of this paper, except to state that most cystoscopes will show the whole of the bladder when properly moved and turned, except for a small area directly around the urethral orifice. Even this has been overcome by special retrograde vision instruments.

3 and 4. *The anatomical and pathological difficulties* are those of most importance. Right here it might be well to state that a cystoscopy should be regarded as a major operation and approached with the same care and preliminary history taking and examinations as any other major operation. These examinations should include especially,

1. Conditions of the urine, as to quantity and constitution.
2. Capacity of bladder.
3. Irritability of bladder.
4. Condition of urethra as to size, length, and diameter.
5. Condition of prostate.

Most, if not all these conditions can be accurately determined without in any way subjecting the patient to pain. By taking a careful history of the condition verbally, by examining the patient in the act of urination, studying the force, diameter, and direction of the stream, by palpating the bladder both over the symphysis and through the rectum. In this way and in this way only shall we be able to avoid the many disagreeable occurrences which so frequently meet us at any and all stages of the examination.

Three conditions must be fulfilled in order that a cystoscopy may be performed: 1. The instrument must be passed into the bladder in such a manner that the prism and the lamp are perfectly clean and clear. 2. The bladder must be dilated to such a degree that all folds in the wall are completely smoothed out, and the instrument freely moved and turned within its cavity. 3. The bladder must be filled with a medium that is perfectly clear and transparent as well as nonirritating.

Trying to obtain these conditions brings us into contact with difficulties found in the patient, and therefore of an anatomical or pathological nature. They may be in the pendulous urethra, the membranous urethra, the prostatic urethra, bladder itself, or the ureters.

The first and most frequent obstruction met with in trying to pass a cystoscope, is a contracted meatus very frequently seen in elderly prostatics, who have been leading a catheter life. This shows itself in the form of a lymph infiltration around the meatus, of a varying degree of hardness and extent and of exquisite tenderness. Whether this is acquired or of the congenital variety, the best way of overcoming it is to use a subcutaneous local anesthetic, cocaine, eucaine, or alypin, being careful not to puncture the mucous membrane of the urethra,

and then dilating with a succession of conical straight sounds. After the removal of the last, insert the instrument quickly beyond the constriction, and in this way avoid smearing the lens or lamp with the blood which flows from the stretched area.

Strictures of the urethra must be treated according to their size and consistence, and usually necessitate a postponement of the examination.

Hyperesthetic patches may be present in the wall of the urethra, giving rise to spasmodic contractions of the canal sufficiently strong completely to prevent the passage of the instrument. The lining membrane of the urethra may be changed by inflammatory processes so that the cystoscope repeatedly becomes covered with secretion obscuring the prism, or a hemorrhage may occur sufficiently brisk completely to prevent examination. A very interesting example of urethral obstruction occurred in my experience lately in a gentleman, fifty-five years of age, when after inserting the cystoscope about two inches into the urethra, complete obstruction was met with. Stricture was my first diagnosis, but on using a Goldschmitt irrigating urethroscope, the whole lumen was found filled with simple papillomas, to the number of thirty or forty. After removal introduction was perfectly easy. Here I wish to say that I believe that no case of acute urethritis should be cystoscoped, except, of course, in cases of extreme necessity, until such discharge has been properly controlled. Especially is this the case where the secretion is derived from the posterior urethra, as the discharge flows backward into the bladder and quickly causes a turbidity of the fluid used for dilatation.

Exceedingly important are the changes found in the prostatic urethra, especially in men of middle or old age due to prostatic hypertrophy, and many are the difficulties they offer to a successful examination. They may be the cause of obstruction discharge, irritable bladder, hemorrhage, either alone or combined with any or all of the others. The changes may affect the urethra alone or both the urethra and the bladder. The most common is a lengthening of the anteroposterior diameter of the urethra with a marked pouching of the posterior wall, which makes great skill necessary for the passing of the cystoscope. This is accomplished successfully by keeping the point of the instrument close to the anterosuperior surface of the urethra and in this manner avoiding the pit dug for us.

Depending on the relative enlargement of the two lateral lobes of the prostate, the urethra may be directed to one side or the other, or even in a corkscrew direction. If the enlargement is regular and upward, the urethral canal may be so lengthened that our ordinary instruments are not sufficiently long to give us a good view of the bladder interior. Where the median lobe is mainly affected, it may offer a complete obstruction to our viewing the trigone, especially that part immediately behind the enlargement, which comparatively often is the hiding place of one or more small calculi. When we have attempted to cystoscope cases of prostatic hypertrophy a number of times, and have seen the free hemorrhages which may occur, we get some idea of what a state of hyperemia exists in the lower

pelvis of these patients. This is brought home to us still more strongly when we see what a marked improvement can be induced by proper preliminary treatment. A few days' rest in bed, purgation, light diet, the insertion of a self retaining catheter, and irrigation with a gradually increasing strength of silver nitrate solution will usually enable us to reach our goal. The prostatic shows changes, not alone in the form and diameter of his urethra, but his bladder is early and markedly affected by his condition. Change of size and shape, trabeculation and thickening, infiltration and inflammation of the bladder wall are regular accompaniments, and while not necessarily troubles, give rise to many minor ailments, and local lesions calling for recognition and treatment.

The bladder may interfere with our examination, first, through a decrease in the resilience and elasticity of its wall, but more often through the contamination of its contents by blood or purulent material. While the usual quantity of fluid used in cystoscopy is from 150 to 175 c. c., the examination can be done with quantities as low as fifty c. c. Below this amount all objects become so distorted in appearance and position, that it is only with extreme difficulty that we can determine the extent and site of a given lesion. Especially is this the case in the female bladder, whose base is not so firmly and definitely fixed as in the male.

Cases of bladder irritability usually may be divided into three types or classes.

1. The cases where the bladder holds the normal quantity, 200 c. c., and the patient had previously shown no increase in frequency of micturition. Everything looks lovely for an easy examination. No sooner have we begun to wash out the bladder than a spasmodic contraction occurs, expelling contents of both bladder and catheter; this, too, in spite of previous local anesthesia and without any complaint of pain. It is due simply to an inherent irritability of the bladder. We can best avoid this, (a) through local anesthesia, (b) using a good syringe, (c) by inserting the catheter sufficiently far into the bladder so that the irritable area around the neck of the bladder is exposed to a minimum amount of irritation. This type of case is seen most often in patients with stone and in nervous individuals. A hypodermic of morphine before beginning the examination is of great use in these cases.

2. In the second type of cases the capacity of the bladder is decreased, the bladder is irritated by the presence of a small quantity of urine, the patient has previously been suffering from strangury, and exceedingly small quantities of the fluid for washing out the bladder are tolerated. This type is very frequent and met with in many different bladder conditions, especially those of an inflammatory nature. The milder cases of this class can be examined immediately, provided that a thorough local anesthesia is obtained, especially when preceded by a hypodermic of morphine, fifteen minutes before the examination; in the severer cases rest in bed for a few days (especially in cases of gravel) and a slight amount of narcotic in the form of suppositories. Sandalwood internally will usually greatly aid us in obtaining a good result. In a few of these

cases a systematic gradual dilatation of the bladder by means of a syringe (not an irrigating stand) and a gradually increasing strength of silver nitrate solution will also help us. If a general anesthetic is necessary, one thing is to be remembered. If used at all, anesthesia should be complete, as a sudden movement or contraction of a muscle or organ may suffice to cause damage or severe bleeding.

3. The third type of cases are those in which the bladder is irritable and contracted by infiltration and inflammatory material or surrounded by perivesicular inflammatory deposits. This is always the final result of severe bladder conditions affecting not only the mucous membrane, but also the muscular wall by purulent infiltration, scar tissue, or carcinomatous masses. In some of these cases even general anesthesia permits only slight dilatation, and we expose the patient to the risk of rupture and perforation if the slightest force is used. In this type, where the ordinary cystoscope fails us, the cystourethroscope of Buerger may help us out, owing to the small amount of fluid necessary.

4. The third prime necessity is to obtain a perfectly clear medium for filling the bladder. This of course should be absolutely nonirritating and of the body temperature. Even a slight amount of cloudiness is sufficient markedly to interfere with a clear field of vision. Rarely this may be due to earthy phosphates in the secreted urine or to bacteria, but usually pus and blood are the only two fluids which interfere seriously with our examination. We may state that in all free hemorrhages and acute purulent processes, it is probably preferable to postpone the examination until an attempt has been made to decrease the amount of bleeding or pus by appropriate treatment, even though an absolute diagnosis as to the site of the lesion has not been made.

In less acute cases we must employ repeated washings of the bladder through a soft rubber or woven silk catheter, using only small quantities, thirty to fifty c. c. at a time, in order to avoid irritation and contraction of the bladder and hemorrhage. Simply distending the bladder may be sufficient to cause an exudation of blood colored serum from the stretched mucous membrane, and complete emptying of the bladder after each filling may also cause hemorrhage through the bladder contracting on the catheter. This can be avoided by allowing a few c. c. of the irrigating fluid to remain behind at the end of each washing. Adrenaline internally or locally is also of use.

When we advance beyond the mere cystoscopic examination to catheterization of the ureters, other forms of obstruction and difficulties come into consideration. Congenital narrowing or abnormal location, congenital or from disease, prolapse or deformity, bullous edema, marked trabeculization, diverticula, growths, etc., all are to be met with and overcome in our march toward a successful result.

I feel diffident about the value of this paper, but if I have properly emphasized one solitary fact, namely, that it is to the interest of the patient to have only one examination and that a successful one, I feel that I have achieved more than I had any right to expect.

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Abstracts and Reviews.

SOME VISCERAL SYMPTOMS OF AUTONOMIC (SYMPATHETIC) DISTURBANCE WITH ESPECIAL REFERENCE TO SO CALLED "VAGOTONIA" AND "SYMPATHICOTONIA."*

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During the nineteenth century, especially the latter quarter, isolated cases of vasomotor disturbance were recorded as "curious" or "rare" observations or as "cases for diagnosis." No attempt, however, had been made to coordinate and group them except as to the well known syndromes of Graves and Raynaud. The speaker's experience, however, beginning in 1885, led to the conviction that these disturbances were very common—in fact, to be met with every day if one kept one's eyes open. For the author's paper of 1893 but sixty-four cases had been accepted, as the result of eight years' collection, but later the records accumulated until no less than 3,000 were available for analysis. Since then thousands more have been met with, establishing a distinct variety of the human species—susceptible not only to vasomotor disturbance, but to a whole series of phenomena that may be included under the comprehensive term—*autonomic ataxia*. Among them are the states recently designated sympathicotonia and vagotonia, conditions seemingly directly opposed, but in reality overlapping to a marked extent in individual cases; so much so, indeed, that instances of pure sympathicotonia or vagotonia may actually be said not to exist. Visceral disturbances comprise only one class of the cases referred to. These conditions occur in a group of persons presenting certain easily recognized signs or "stigmata"—that is to say, signs not requiring the use of pharmacological tests, such as the experimental administration of epinephrine or pilocarpine, for their detection.

The present tendency to establish a complete distinction between the autonomic and sympathetic portions of the nervous system, fostered in the work of Eppinger and Hess, is to be deprecated. The sympathetic system, as erroneously restricted by recent writers, is properly only a part of the autonomic system of Langley; while the term autonomic is itself merely a modern designation for what many living and not highly ancient men were taught to be the "sympathetic system." Fibres of the vegetative nervous system neighboring and related to the thoracic portion of the spinal axis are now arbitrarily termed "sympathetic," while the fibres connected with the mid brain, hind brain, and sacral region are designated "autonomic." Sympathetic nerves to the stomach, originating from ganglia along the spine, are considered to inhibit muscular contraction and secretion in that organ, whereas if derived from the cerebral region, they are spoken of as forming part of the vagus distribution, and

stimulating motor as well as secretory activity. As a matter of fact, physiologists are not agreed as to the true ultimate origin of all these fibres or at least of the impulses transmitted through the ganglionic way stations. From both clinical and experimental observations it now seems justifiable to speak of the probable existence, somewhere in the encephalon, of a general centre governing the autonomic system as a whole.

So far as the disturbances already referred to are independent of organic disease, they appear to result from a want of inhibitive power, tone, coordinate or taxic activity in the related centres, central, proximal, and peripheral. In other words, there is fundamentally an *imbalance*—this depending on heredity and other facts that are beyond the present discussion. That the condition is one of imbalance, and not necessarily of excess, either relative or absolute, in one direction, is shown by the fact that a single individual may exhibit at the same time phenomena of the sympathicotonic and vagotonic (two presumably opposed) groups—e. g., vasodilatation and tachycardia, and at different times exactly opposite phenomena in the same organ—e. g., today hyposcretion, next week hypersecretion in the stomach. There may even exist simultaneously a condition of so called sympathicotonia in the stomach and one of distinct vagotonia in relation to the heart.

Whereas the fibres of thoracic derivation are believed, as regards the vessels, to induce vasoconstriction, the cerebral fibres and those communicating with them are considered to act as vasodilators. One system, if in a state of hypertonicity, would induce vasoconstriction, and the other, if in a like state, vasodilatation. But actually the condition varies, vasoconstriction occurring in one place and vasodilatation in another. The condition existing, then, is essentially one of imbalance. There is no persistent and consistently exclusive disturbance in one direction—although one may persistently predominate, as recognized in the speaker's three classes of 1893. The significant fact is a tendency to the production of the different phenomena of autonomic incoordination at different times.

The cardiac and vascular phenomena being, in a sense, superficial, i. e., more readily observed and studied, the states of imbalance referred to were in the author's lectures and papers from 1885 on designated "vasomotor" ataxia, although the visceral and other phenomena of tissue and gland activity were distinctly described and related. The three varieties were termed "*chiefly constrictive*" (corresponding to "sympathicotonia"), "*chiefly dilative*" (corresponding to "vagotonia"), and *mixed*. The last is the largest class. In 1910 the term "autonomic ataxia" was substituted. Thus there are common conditions of cerebral, gastric, renal, cardiac, bronchial, and intestinal disturbance—e. g., migraine, hay fever, angina, polyuria, asthma, recurrent pulmonary edema, hepatalgia, cardialgia, nephralgia, appendicular colic, mucous colitis, etc., all dependent on autonomic imbalance and all characterized by a tendency to the appearance of crises or paroxysms, chiefly vascular, sometimes muscular or secretory as well. Among the more important manifestations relating to the alimentary tract

*Summary of an address before the Section in General Medicine, College of Physicians of Philadelphia, January 25, 1915.

are anorexia, nausea, complete or partial inhibition of digestion, vomiting, diarrhea, aerophagia, gastralgia, etc. The gastric conditions especially are frequently precipitated by eyestrain, through the ciliary connections of the autonomic system. Fatigue and emotion also act as precipitants; in the latter case probably a new element is introduced by adrenal disturbance, but this phase of the question is too large for more than mention at this time.

On the whole, it is to be borne in mind that three cooperating factors are requisite for the production and appearance of the disturbances under consideration:

1. A constitutional or "temperamental" liability to imperfect autonomic functioning, whether this imperfection be expressed in the form of excess or of deficiency, whether it affect excitatory or inhibitory factors; and independently of its ultimate seat or origin. This is found in families and clans, and is hereditary in most instances. It is the *autonomic ataxia*.

2. A special exciting agency, the commonest being a drug, food, or metabolic poison, or an excessive or perverted internal secretion; emotion, fatigue, thermal changes, electric disturbances, eyestrain, and kindred influences.

3. A local determinant, e. g., a selectively acting drug or toxin, slight trauma, eyestrain, excessive function of the organ or part, etc. Upon the appearance of such a local factor depends the tendency, so frequently noted, to an organized or habitual syndrome—to consistent repetition of like attacks. Certain factors are both exciting and determining—as the *noxæ* of hay fever.

At times the conditions described are related to neurasthenia and hysteria; but also to epilepsy, to gout, to tuberculosis, to various metabolic and nutritional failures. Clinically, the existence of a group of persons not properly to be termed neurasthenic or hysterical, presenting exclusively one or more of the manifestations of autonomic imbalance, is quite clear. In so far as may be judged in the absence of definite statistical data from many sources, about five per cent. of all individuals coming under medical observation exhibit this lack of equilibrium in the autonomic functions. The *diagnosis of the individual* is therefore much more important than the designation by name of the particular collocation of symptoms presented at a special instant of his life history. For the liability to disturbance of autonomic balance, and especially of vasomotor taxis, by influences which are inadequate to produce such disturbance in the other four fifths or so of mankind, is permanent. The special symptoms vary with the incidence and coincidence of special exciting and determining factors. The man is one, the disturbances are many. Moreover, they are chiefly caricatures, exaggerations, of reactions that may occur in normal persons under causative factors of like quality but of greater quantity—of similar kind, but of greater degree. And this consideration—i. e., as to the adequacy of the exciting cause is an important factor in suggesting the diagnosis, which is established partly by exclusion and largely by the family and personal history and the characteristic appearances and reactions to simple tests described by the author, in

1893, in his communication to the Pan American Medical Congress of that year.

Correspondence.

LETTER FROM THE BALKANS.

On the dividing line between Greece and Serbia.—Advantages of knowing the Slavic languages.—American surgeons at the Inzinirska Kasarna.—Gaining confidence of people and authorities.—Alleged use of dum-dum bullets by the Austrians.—Stolidity of the Servian soldier.—Heavy mortality among the surgeons.—Epidemics of typhus, smallpox, pneumonia, and dysentery.

SKOPLJE, SERBIA, February 14, 1915.

When we arrived in Serbia three months ago, we had the opportunity to show at once what we came for. We arrived at Dzevdzelija, on the dividing line between Greece and Serbia, and when we left the train we were told that it was absolutely impossible for us to travel further, because the Bulgarian "komity" had destroyed the bridge at Strumica, and there was a skirmish going on of some size. I dressed a captain right at the depot and we went then to the hospital, or rather to a building which used to be a tobacco factory and was changed to a place to receive patients and wounded soldiers. Our first patients came direct from the aforesaid skirmish, and beside those wounded elsewhere we had here over 270 patients to whom we gave at once our full attention, changing the local hygienic conditions as much as possible. We had the confidence of the authorities and the people at large, because we could talk to them and make all our patients understand us. We were only three surgeons and had two male nurses and two women. Each of us took charge of one department or one story, and the surgical work of minor character was done on the spot, so to speak, or at the place assigned for bandaging, the Servian girls and women of the local Red Cross helping as much as possible. Our work, with our knowledge of the language, in a few days was conspicuous, so that the commander, Doctor Zerajevic, of Skoplje, came to tell us that we must move to Skoplje at once, leaving one of our men and one female and a male nurse there, until the American Red Cross units should arrive. After those few days of preliminary hard work in Dzevdzelija, we came to Skoplje, being conducted there by the commander himself, and were housed in the Inzinirska Kasarna, where there was a hospital also, beside the others in the city, twelve in number, having a capacity for many thousands of patients.

The military authorities wanted perhaps to find out how strong our unit was, not in numbers exactly, but as to efficiency in work, and ordered us to work in the bandaging room of one of the largest hospitals here at the old castle of the Czar, Dusan Silny, a hospital which has many new and modern conveniences as well as some other things of different character. Our colleague, Doctor Nikolic, did some good work in the department of surgery. We assisted him in quite a few operations and finally re-

ceived our present pavilion at the Inzinirka Kasarna, as the hospital is in two divisions, designed solely for our management. We at once surveyed the surroundings of the place, examined the water and the possibilities of canalization, and made arrangements for the reception of the wounded and sick soldiers in such a way that our reputation was soon made with the people, although not so soon with the authorities. Finally we gained the confidence even of the latter, and at present do the work absolutely independently and under our own control.

We tried our best to clean up the place and had from the very start over 600 in our care, some of the wounds being simply terrible, especially those produced by the so called *Spitzkugeln* cut to dum-dums by the Austrian army. Our work right from the start was done systematically and honestly, without fear or hesitation, and even now when one woman nurse of ours (Mrs. Guca) is dead of typhus and one of our colleagues (Dr. John M. Kara), with the same terrible and highly infectious disease succumbed today, we are holding to our post, the Grecian missions and others having been recalled. We certainly met with many difficulties; but these are times of war and war is hell! The suffering of some of the wounded forgotten in hidden places of some of the many battlefields is simply beyond description, and the bravery of the Servian soldiers, even on the operating table, is really astonishing.

Our unit, sent here by our benefactor, Mr. Frothingham, of New York, has never asked for remuneration or allowances from this poor nation, which went through three horrible wars before and is now defending herself against invasion by a numerically stronger enemy. But the enemy lost, and lost so much, that thousands and thousands of prisoners of war were taken, and now our main medical study is to prevent the calamity of an epidemic, which may follow later in the summer, because there are no suitable places to take care of this mass of human beings, dying of typhus, diphtheria, scarlet fever, remittent fever, dysentery, etc. Actually to see the dark side of the results of the human massacre called war, you have to come here, or go beyond the Russian lines, on the German frontier, into the French trenches and the Belgian desert, and see the English suffering with their comrades in the field in the North. During the actual fighting, at the start the Servians had very good surgical and medical service; but later, without the help from Bohemian physicians and surgeons from Prague, etc., and from the other missions and volunteer organizations, their medical help was insufficient, and at present many things are lacking. When we take into consideration also the lack of medical and surgical material, we have to excuse some of the mistakes made in hiring opticians and dentists for the actual surgical work done in the bandaging rooms of even larger hospitals than ours. At present, many good men, surgeons and physicians, have died of typhus, or on the field of duty, and the outside help is comparatively small for so many thousands and thousands of wounded, beside convalescents and patients with smallpox, or pneumonia, or dysentery. You can now begin to understand the condition of affairs!

The work in our hospital is done under aseptic

conditions, as far as possible. Disinfection is done every day carefully and thoroughly, the operating room being comparatively small, but equipped with all modern apparatus, including x ray, high frequency and all other currents for the treatment of neuritis, paresis, etc. As others have recognized elsewhere, the wounds produced by a clean bullet are not so dangerous as those made by a bomb, shrapnel, grenades, etc. The dangers from infection and the effects of the modern small calibre bullet on the bones and soft tissues of the body we have studied carefully. In hundreds of cases of aseptic wounds, in which the bullet had lodged in the tissues and was removed weeks later, the swelling of the tissues had almost or entirely obliterated the tubular wound, the location of which was indicated by a small mark or discoloration, parenchymatous extravasation, remains of fluid or coagulated blood, and a limited area of edema and infiltration. The course of the bullet was studied with the Röntgen rays, and, as advisable, the lead was either removed or left alone. In other cases there was complete encapsulation. Sometimes the patient had no pain or tenderness over the wound of entrance, and if it was a perforation gave no symptoms. Many bullets were much deformed, especially when they struck the large bones. We had many hundreds of fractures of the upper third of the femur, of both bones lower down, or of the tibia alone. Some of the fractures looked simply terrible to the eye, but after careful x ray examination, resections were made, spiculæ removed, and necrosis treated accordingly. We had also numerous head injuries and fractures of the humerus, radius, and ulna. Bullets passing through the body lengthwise produced often a number of wounds. Dum-dums produced lacerations which seemed to us not to heal at all under any treatment. In such cases there were three or more wounds of entrance produced by the coating of the same bullet. Probing of the wounds was prohibited, and our work was done accordingly, our diagnosis depending on the x ray findings only.

Senn was right in stating that the fate of the wounded rests in the hands of the one who applies the first dressing. Here aseptic surgery has an extensive and a fair trial, and the evil of meddlesome surgery becomes apparent every day. Dressings in our cases were not touched unless the symptoms demanded it. We have seen wounds of the chest, the sternum destroyed completely, the lungs and heart exposed, yet the patient lived, after operative procedure. We had hundreds of compound fractures, but only six amputations, doing resections every day, craniectomy, drainage, etc. Rest and Nature were two good comrades of ours, especially in the gunshot wounds of the chest, abdomen, spine, and after operation in the wounds of arteries. Aneurysms, were very frequent indeed, and one had to be *semper paratus*. Wounds of the kidney, bladder, and stomach we also had, but at present the greatest enemies of ours are the diseases already mentioned and infection. We lost two of our members in one week, but fortunately received two new ones, and are working hard and fighting danger as much as possible. Eighty-two Servian physicians and surgeons died in one month, and here in Skoplje we are suffering enough.

J. RUDIS JICINSKY, M. D.

Therapeutic Notes.

Treatment of Common Respiratory Affections.

—C. G. Coakley, in the recently issued fifth edition of his *Manual of Diseases of the Nose and Throat*, recommends the following sedative combinations for use in acute and chronic inflammations of the mucous membranes of the respiratory passages, especially those accompanied by a sensation of rawness or tickling in the pharynx and a persistent cough:

I.

℞ Terpini hydratis, gr. ii (0.12 gram);
Ammonii chloridi, gr. i (0.06 gram);
Extracti glycyrrhizæ, gr. ½ (0.03 gram);
Ipecacuanhæ pulveris, { āā gr. 1/10 (0.006 gram).
Codeinæ, }

M. ft. trochiscum No. i.

Sig.: One lozenge every hour or two until tickling and cough cease.

II.

℞ Ammonii chloridi, gr. ii (0.12 gram);
Ipecacuanhæ pulveris, gr. ¼ (0.015 gram);
Fluidextracti scillæ, { āā mī (0.06 c. c.).
Fluidextracti senegæ, }

M. ft. trochiscum No. i.

Sig.: One lozenge every hour or two until tickling and cough cease.

III.

℞ Phenolis gr. 1/40 (0.0015 gram);
Mentholis, gr. 1/30 (0.002 gram);
Olei sassafras, mī (0.06 c. c.).
Acaciæ pulveris, { āā q. s.
Sacchari lactis, }

M. ft. trochiscum No. i.

The last is a good lozenge for the foul breath associated with syphilitic and atrophic affections of the pharynx and larynx. The following combinations are intended to increase the activity of the glands of both the pharynx and larynx, and are indicated in cases in which dryness of these parts and hoarseness are experienced:

I.

℞ Potassii chloratis, gr. ii (0.12 gram);
Fluidextracti eucalypti, mī (0.06 c. c.);
Cubebæ pulveris, gr. ¼ (0.015 gram);
Sacchari lactis, q. s.

M. ft. trochiscum No. i.

Sig.: One lozenge every hour or two for dry throat and hoarseness.

II.

℞ Mentholis, gr. 1/35 (0.0018 gram);
Acidi benzoici, gr. 1/12 (0.005 gram);
Olei anisi, mī 1/80 (0.0008 c. c.);
Eucalyptolis, mī 1/15 (0.004 c. c.);
Sacchari lactis, q. s.

M. ft. trochiscum No. i.

Sig.: One lozenge every hour or two for dry throat and hoarseness.

Treatment of Ulcus interdigitalis foetidum.—

Nathan Barlow, in the *American Journal of Tropical Diseases and Preventive Medicine*, June, 1914, reports from Honduras three cases of a serious form of ulcer interdigitalis characterized as follows: An extremely painful, irregular fissure or ulcer between or around the bases of the toes, with the surrounding skin white and sodden, and a profuse offensive serous or seropurulent bacteria laden discharge. A peculiarity of the condition is the great swelling of the foot, the foot and ankle, or even of

the entire calf, which may occur after walking, and suggests the presence of a severe infection of the foot. It seems as if no complications are to be feared, but under ordinary treatment the affection may disable the patient for a number of months. The first case was treated with various antiseptic applications, including potassium permanganate, salicylic ointment, and chrysarobin, without success. Finally the following plan of treatment was hit upon, which, it was found, will bring about complete healing in from ten days to five weeks, according to the extent of the involvement. If the condition is very painful, anesthetize with five per cent. cocaine solution. Then apply a pledget of cotton saturated with a three per cent. solution of salicylic acid in alcohol. Leave this in place five minutes, and then replace it with dry cotton. The cotton should be changed as frequently as possible, in order that it may be kept absolutely dry. The treatment should be repeated twice daily until the ulcer has completely healed. The patient should not walk at all until he can do so without pain—usually in three or four days. The front of the shoes should be cut away at this time.

Artificial Pneumothorax.—W. H. Watterson, in the *St. Paul Medical Journal* for February, 1914, summarizes the indications for the artificial production of pneumothorax in pulmonary tuberculosis as follows: 1. Advanced lung tuberculosis with one or more cavities strictly localized to one side, and with little pleurisy; 2, true phthisis, in which the process has destroyed more or less of pulmonary tissue (early and acute cases being thus excluded from the treatment); 3, uncontrollable hemoptysis, provided that the side whence the hemorrhage originates is definitely known; 4, cases with severe symptoms of absorption of toxins from a badly diseased lung, unimproved by ordinary methods. Extensive involvement of both lungs and circulatory complications contraindicate the use of the measure. In carrying out the latter the author adopts a plan midway between those of Murphy and of Forlanini, making an incision from a quarter to a half inch in length in a suitable position under ethyl chloride local anesthesia, passing the scalpel blade on down into the intercostal muscles, and finally, inserting a semi-blunt needle through the parietal pleura. To determine, as far as possible, the proper site for injection, he makes a careful physical examination to find the portion of the lung least affected. This site is chosen for the procedure because one may reasonably expect the fewest adhesions to be situated there. Careful use of the water manometer for ascertaining when the needle lies free in the pleural cavity is strictly enjoined. Severe pain at any period during which a moderate amount of nitrogen is being insufflated indicates pleural adhesion, and it is then wise to stop the introduction of gas, at least for a few minutes. Making up one's mind beforehand as to the total amount of nitrogen to be given is considered by Watterson a mistake. The safest method is to watch the manometer and cease injecting when a positive pressure is shown, or when considerable discomfort or dyspnea appears. Among the author's cases, special benefit was noted in those with severe hemoptysis.

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GLANDERS IN NEW YORK CITY.

The records show that in New York during the past five years 5,803 horses died from glanders or were killed because of it; occasioning a money loss of over one million dollars. The smallest number of deaths in any one of these years was 924, in 1910, and the largest, 1479, in 1912. In 1914, they amounted to 1,124; yet glanders has been for some time known to be a wholly preventable disease. The organism responsible for it, very similar to the typhoid bacillus and designated as *Bacillus mallei*, was discovered by Löffler and Schütz, in 1882, and since then more diagnostic tests and methods have been devised than in the case of any other infectious disease of animals. In 1913, an efficient committee appointed at the forty-ninth annual meeting of the American Veterinary Society prepared an elaborate report on the detection of glanders in horses, and in this the various tests are described. For some time past the New York department of health has employed the complement fixation test, the technic of which for glanders is similar to that of the Wassermann reaction, except that an antigen prepared from pure cultures of *Bacillus mallei* is used; this has proved most accurate and possesses many advantages over the tests previously resorted to. In order to control the work of the laboratory, and to eliminate as far as possible the personal equation, all horses showing a strongly

positive reaction, are subjected to the conjunctival mallein test; when, the results of the two tests agreeing, the animal in question is condemned and turned over to the State Department of Agriculture for appraisal and destruction.

Glanders is transmitted directly from animal to animal, by contact or inhalation or through skin abrasions, and indirectly by infected harness and food and, most frequently of all, it is believed, by means of public drinking troughs and blacksmith shops. Man is susceptible to the disease, but it is almost impossible to estimate the number of cases of human glanders on account of the difficulty attending diagnosis. The mortality has been put down as seventy-five per cent., and during the five years from 1909 to 1913, inclusive, there was reported an average of about three deaths a year in this city; the number ranging from one to five. In 1914, no death was recorded. Naturally, those handling horses are most liable to infection. In a recent issue of the weekly bulletin of the health department, there is given some account of the means employed for the control of glanders, and it is stated that it is for the most part through the public drinking trough that this disease is spread among horses; as is shown by the fact that in St. Paul, Minn., and in London, Glasgow, and Belfast, the abolition of public troughs resulted in the practical elimination of glanders. Last summer the New York board of aldermen passed an ordinance prohibiting such troughs, to take effect on August 7th, but, owing to certain circumstances, the time was subsequently extended. The revised sanitary code requires that all stables in the city shall be licensed, and a census taken previous to the adoption of the section showed that there were in New York no fewer than 11,080 occupied stables. A source of spread of the disease still uninterfered with is presented by the horseshoeing establishments, but sanitary control of these will be undertaken in the near future. On the whole, unless the experience of New York is an exception to that of other cities, it is confidently expected that the next twelve months will show a marked reduction in glanders.

INTEMPERANCE A SIGN OF PSYCHICAL
INADEQUACY.

The individual and social disease of intemperance has a more fundamental significance than is usually recognized by those who endeavor to cope with it. Dr. G. E. Partridge, in his investigations of alcoholism, which he has embodied in a scholarly yet practical volume, *Studies in the Psychology of Intemperance*, treats the problem in a manner valuable no

less because of its comprehensive viewpoint than of its careful scientific detail. Effective dealing with it must rest upon an understanding of the intoxication impulse in its history throughout the evolutionary development of mankind. Through such an extensive consideration, Doctor Partridge finds it an accompaniment and the source of those exalted psychical states necessary for the development of individual and racial consciousness, which meant enlarged mental horizon and the lifting of individuals and nations to levels of constructive mental activity. In time the race acquired the fixation of these levels, and the intoxication impulse had served its usefulness.

The impulse survives today in its harmful aspects. It no longer has a great function to perform. It dominates individuals and social groups when they are unable to reach these higher levels of activity, to direct their vital energies into these channels; and so are dependent upon its temporary and inefficient exhilaration. They find in it also a social reaction, likewise inadequate and evanescent, but a feeble survival of the effective social awakening that intoxication produced in the early history of mankind. The narcosis of alcohol or other drugs is now merely a refuge for those whose mental organization demands release from the too great pressure which they are unable to meet in the ceaseless struggle for existence and advance, the unequal struggle between instinctive forces and social and ethical conditions.

Careful laboratory experimentation upon normal subjects, as well as observations upon many habitual drunkards, serve to establish two things; one, the inherent psychic nature of the intoxication impulse, the other, its merely temporary narcotizing effect with immediately subsequent diminution and retardation of activity. That alcoholism is not due to a physiological effect upon somatic tissue is emphasized by the consideration of many noteworthy cases of complete cure and renunciation of the drinking habit. These show that dominance of the impulse in the history of the individual follows the same course as in the history of the race and of nations. The adolescent period and that just preceding middle life, when energy must be directed into the most productive channels, are the chief periods for the formation of the habit, while the contrasting periods of decline of activity evidently favor efforts toward cure and the voluntary relinquishing of alcoholic indulgence. Again, marked weakness and decadence in these latter periods results in indulgence to excess or in the narcotic side of intoxication.

The practical problem arising out of such an understanding of intemperance involves no simple and easy task. Specific remedies, penal restraint, anything that treats the symptomatic manifestations of

intemperance cannot effect a radical cure. The religious attitude has been to look upon alcoholic indulgence as moral turpitude and sin, and yet through religious conversions notable cures have been wrought, for they have offered a new, strongly emotional interest to turn man's inner forces to this higher field of activity; for this is just the principle that must underlie both prophylactic endeavor with the young and the cure of those who are drunkards. Education and reeducation must be attempted on the basis of this fundamental understanding of man's psychical nature and the place of the intoxication impulse within it. His activities must be directed to higher spheres, which must, however, be such as are capable of arousing an interest sufficient to stimulate and sustain him in his best endeavor. This means broad and careful planning with individual and social cooperation to provide training for the young and opportunities for the unfortunate.

ANTISEPSIS VERSUS ASEPSIS.

With Lister there arose an era in surgery during which the use of antiseptics was extended beyond all bounds of reason, and a natural reaction was initiated by such misuse, a reaction aided by the progress at the same time in the new science of bacteriology. The impetus became so great that we were carried not only to aseptic surgery, but to contempt for antiseptics. We are now at the height of the aseptic wave, and surgeons generally are inclined to look askance at any one who would introduce a powerful antiseptic or germicide into a wound. Some there are, with the courage of their convictions, who have advocated the employment of powerful bactericidal agents in the treatment of grossly infected wounds, and experience in the treatment of such wounds in the present war is giving support to those who have not completely forsaken all the Listerian methods.

Several recent papers in foreign medical journals have dealt with this subject from widely different aspects, but all seem to point in the same direction—to the value of active antiseptics to combat local infection. Some of these communications make it evident that drainage and aseptic methods alone are insufficient to give the patient the best chances of recovery and to reduce the loss of tissue to a minimum. The aseptic treatment also is shown to be time consuming—a matter of no little moment in conditions of peace, and which rises to the greatest importance in war. On the other hand, the evidence is convincing that active antiseptic methods tend to shorten the period of recovery, increase the patient's chances of overcoming infection, and conserve the tissues to an appreciable extent.

Practical experience seems to favor the immediate application, after the removal of dead tissue and foreign material, of pure phenol. Contrary to prevalent opinion such heroic treatment causes only slight damage to the tissues, and has proved effective in destroying many virulent organisms, or in so reducing their vitality that the patient's protective processes deal effectively with them. The same result may be accomplished at less expense with tricresol. Iodine has been proved much too destructive and of too slight germicidal activity. Salicylic acid and a few other germicides lie between phenol and iodine and have decided value.

The two great advantages of phenol or tricresol over all other germicides experimented with are, first, that they are effective against the majority of pathogenic organisms and at the same time cause insignificant destruction of tissue; second, that they penetrate the tissues in powerful concentrations for a considerable depth and thus act effectively in neglected wounds. With the thorough application of one of these substances, either pure or incorporated into a cream with wool fat and white wax, deeply infected and badly lacerated wounds have healed under sterile blood clot exactly as if they had never been invaded by pyogenic organisms.

These experiences are now too numerous to be regarded as fortunate coincidences, and the value of the early use of phenol seems unquestionable. If such methods are effectual in war, why should they not find application in civil practice? Are we destined, here as in many other instances, to encounter the resistance of established doctrine, or will our surgeons embrace the opportunities thus newly opened? It should be said, in conclusion, that aseptic methods still rule supreme at the front in Europe in all "clean cases" and there is no hint that antiseptics should be introduced in such cases. It is solely in the treatment of established infection that their use is advocated.

DIAGNOSIS OF TRICHOCEPHALUS IN MAN.

The morbid manifestations set up by the trichocephalus being quite varied, one easily conceives how difficult it may be to detect their true nature. Sometimes the presence of the trichocephalus is evinced only by an obstinate diarrhea, which wears out the patient and causes a loss of flesh, so that one at once suspects a tuberculous enteritis. The diarrhea may be combined with intestinal hemorrhage, and under these circumstances, particularly in the case of a child, should the dejecta be examined, the parasite or its ova will be found. It is just in these unusual intestinal disturbances which attract attention, that

the diagnosis is made. Diagnosis may be rendered difficult when pain becomes localized in the right iliac fossa, particularly when there is, at the same time, a rise in temperature. Here again, examination of the stools is indicated, and if the ova are found the administration of thymol will end the trouble.

The nervous disturbances may mislead the physician, for perchance, only headache is complained of. The same applies to convulsions, paralysis, or aphonia, and frequently the condition resembles hysteria pure and simple. In the case of a child particularly, one should always suspect the presence of tapeworm. From reported cases, one may very properly suppose that the trichocephalus gives rise to meningeal symptoms which, for that matter, have been noted in instances of intestinal worms. To the local phenomena, viz., headache, stiffness of the neck and thorax, convulsions, and contractures, fever may be added, so that a mistaken diagnosis of acute meningitis may readily be conceived. Certain unusual symptoms, however, must draw the practitioner's attention to the possible presence of intestinal parasites, such as sharp abdominal pain and diarrhea.

There remains the anemia, which, if accompanied by distinct intestinal disturbances, dysenteriform colitis, and intestinal hemorrhage, renders the diagnosis easy, for the very good reason that an examination of the feces will be made. When the anemia appears as the only symptom with the aspect of chlorosis or pernicious anemia, the true cause of the trouble will probably be overlooked. All this goes to show that there is no pathognomonic symptom which will indicate the presence of the trichocephalus in the intestine. On the other hand, there are numerous symptoms which will give a clue to the situation, lead to an examination of the feces, and give the correct diagnosis. If, at the first examination no ova are found, the administration of a purgative will give a positive result.

TYPHOID IN THE IMMUNIZED.

At a meeting of the Société médicale des hôpitaux, according to *Presse médicale* for March 18, 1915, P. Carnot and B. Weill-Hallé summarized their conclusions concerning fever in those inoculated against typhoid as follows: 1. In an immense majority of cases, preventive inoculation confers complete immunity; 2, in certain rare cases, those vaccinated have a light fever of typhoid type; bacteriological examination shows in these cases a paratyphoid organism, but oftener the typical bacillus; 3, insufficient immunization may occasionally be attributed to defective methods of vaccination; 4, the feebleness of immunity is connected sometimes with bodily weakness from overwork; 5, sometimes feeble im-

munity depends on the number and strength of the infecting bacilli; 6, even if immunization is not perfectly satisfactory, it will generally be noted that fever in those inoculated is benign, short in duration, and without complications.

A DEVELOPMENT OF WAR RELIEF WORK.

Among the associations formed to assist sufferers from the present war, one of unusual kind and value is the National Federation for Assistance of the Wounded of the Army and Navy, a French organization which undertakes to supply artificial limbs to French and Belgian soldiers and sailors who need them, and to furnish appropriate education and employment to the maimed. The president is Professor Tuffier, of the University of Paris, and Doctor Mosny, of the Academy of Medicine, is one of the vice-presidents. The offices of the federation are situated at 63 avenue des Champs-Élysées, Paris.

News Items.

Cincinnati Polyclinic.—The formal opening of the new home of the Cincinnati Polyclinic took place on Wednesday, March 24th. The two principal addresses were delivered by Dr. O. W. Stark, speaking for the board of trustees, and Dr. Otto Juettner, speaking on behalf of the medical staff of the institution.

Rockefeller Foundation to Establish a Research Laboratory in New Jersey.—Governor Fielder has signed the bill introduced by Senator Colegate authorizing the Rockefeller Foundation to establish in the State of New Jersey a laboratory for research work in experimental physiology. The laboratory will be built in the vicinity of Rutgers College, at an estimated cost of \$1,000,000.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, April 12th, Wills Hospital Ophthalmic Society; Tuesday, April 13th, Pediatric Society; Wednesday, April 14th, Philadelphia County Medical Society; Thursday, April 15th, Section in Ophthalmology of the College of Physicians, Northeast Branch of the Philadelphia County Medical Society; Friday, April 16th, Jefferson Hospital Clinical Society.

Fraudulent Representative of State Board of Health.—Dr. Linsly R. Williams, deputy commissioner of health, New York State Department of Health, informs us that a man has recently presented himself in Butler, Pa., as George H. Gray, pathologist, State Board of Health, New York. He quit Butler, leaving some obligations behind him. The department has never had anyone of this name in its employ, and Doctor Williams suggests that we mention the matter in the JOURNAL so that others may be warned.

Dedication of the Dr. A. Jacobi Division for Children of the German Hospital.—The board of trustees of the German Hospital and Dispensary in the city of New York has issued invitations to the opening and dedication of the Dr. A. Jacobi Division for Children, also the new building for private patients, to be held in the Anna Offendorfer Dispensary Building, 841 Park Avenue, New York, on Sunday afternoon, April 18th, at three o'clock. The division for children will be open for inspection from two to five o'clock.

Washington University Medical School.—The new buildings of this institution will be dedicated with suitable ceremonies on April 29th and 30th. Among those who will deliver addresses are Dr. Eugene L. Opie, dean of the medical school; Dr. William H. Welch, of Johns Hopkins University; President A. L. Lowell, of Harvard University; Dr. William C. Gorgas, surgeon general, United States Army; Dr. William T. Porter, Dr. R. J. Perry, Dr. George Dock, Dr. Abraham Flexner, and President Henry S. Pritchett, of the Carnegie Foundation for the Advancement of Teaching.

Milk Standards.—The National Commission of Milk Standards, composed of twenty of the leading health officers and sanitary experts in the United States and Canada, will hold its annual meeting in New York city on May 7th and 8th.

Harvard Unit on Duty at the American Hospital in Paris.—The Harvard unit began its three months' term of duty at the American Hospital at Neuilly, a suburb of Paris, on April 1st, succeeding the unit from the Western Reserve University of Cleveland, under Dr. George W. Crile. The following surgeons and nurses comprise the Harvard unit: Dr. Harvey Cushing, Dr. Robert B. Grenough, Dr. Richard P. Strong, Dr. Robert B. Osgood, Dr. Beth Vincent, Dr. Walter M. Boothby, Dr. Fred. A. Callier, Dr. Elliott C. Cutler, Dr. Philip D. Wilson, Dr. Marius N. Smith-Peterson, Dr. Lyman G. Barton, Jr., Dr. Orville F. Rogers, Jr., Dr. George Benet, and Misses Edith I. Cox, Geraldine K. Martin, Helen Parks, and Marion Wilson.

Charities Aid Society Opposes Hinman Bills.—According to a statement issued by the State Charities Aid Association, five bills have been introduced in the legislature of the State of New York by Assemblyman Harold J. Hinman which, if enacted, would emasculate the public health law. They would curtail the efficiency of the public health council; open up appointments requiring special training and expert knowledge to persons not possessing these qualifications; reduce the number of sanitary supervisors, double the size of their districts, and reduce their salaries; and make permissive, instead of mandatory, the performance of the work done by the divisions of child hygiene, vital statistics, public health education, communicable diseases, public health nursing, and tuberculosis.

Testimonial Banquet to Doctor Jacobi.—A testimonial banquet will be tendered Dr. A. Jacobi by the medical profession, his friends, and admirers, under the auspices of the Bronx Hospital and Dispensary, on the occasion of the eighty-fifth anniversary of his birthday, on May 6th, at the Hotel Astor. The committee of arrangements includes the following members: Dr. William J. Robinson, chairman; Dr. Arpad G. Gerster, Dr. Willy Meyer, Dr. S. W. Lambert, Dr. J. Brettauer, Dr. Francis Huber, Dr. A. A. Berg, Dr. M. Rehling, Dr. S. A. Knopf, Dr. H. Edwin Lewis, Dr. M. Aronson, Dr. Otto Schirmer, Dr. Max Rosenthal, Dr. Henry Heiman, Dr. A. L. Goodman, Dr. A. Hymanson, Dr. Alexander Goldman, Dr. A. A. Brill, Dr. A. L. Goldwater, Dr. H. Schumer, and Dr. H. J. Epstein. Communications should be addressed to Dr. William J. Robinson, 12 Mt. Morris Park West; reservations for seats at \$3 should be sent to Dr. A. L. Goldwater, treasurer, 141 West 121st Street.

Personal.—Dr. Victor C. Vaughan, professor of hygiene and preventive medicine in the University of Michigan, Ann Arbor, will deliver an address at a special meeting of the College of Physicians of Philadelphia, on Monday evening, April 12th, on some phases of modern military hygiene and camp sanitation, particularly in reference to war mortality.

Dr. Frank H. Holt, assistant superintendent of the Boston City Hospital for the past eleven years, has resigned his position to become superintendent of the Michael Reese Hospital in Chicago. His resignation takes effect on April 15th, on which day he will have completed twenty-two years of service on the staff of the Boston institution.

Dr. B. F. McGrath, formerly of Beverly, Mass., has resigned as a member of the staff of the Mayo Clinic, Rochester, Minn., and has accepted the position of director of the laboratories of pathological and surgical research in Marquette University, Wisconsin.

Dr. Edward W. Ryan, of Scranton, Pa., who has been for months directing the work of the American Red Cross Society in fighting against typhus fever in Serbia, has been stricken with the disease. Doctor Ryan was a member of the first group of physicians, surgeons, and nurses sent to the Balkans by the American Red Cross about six months ago.

Dr. John R. Murlin, assistant professor of physiology at Cornell University Medical College, has been granted leave of absence to accept a temporary appointment as biochemist at the pellagra hospital established at Spartanburg, S. C., by the United States Public Health Service.

Dr. Cornelius Williams, of St. Paul, has been appointed president of the newly established Minnesota State Health Bureau, and Dr. H. W. Hill, of Minneapolis, is secretary.

Alumni Association of the Medico-Chirurgical College.—Dr. A. C. Morgan was elected president of this association, at the annual meeting held on Tuesday, January 26th. Other officers were elected as follows: First vice-president, Dr. D. J. Monihan; second vice-president, Dr. Fred Ward; third vice-president, Dr. Frank Sheppard; secretary, Dr. E. H. Erney; treasurer, Dr. John A. Brophy. An executive committee of twenty-five members was also elected.

Conference on Child Labor.—At the eleventh annual conference on child labor, which will be held in San Francisco, Cal., the last week in May, an effort will be made to draw up a National Children's Charter which will be the basis for future child welfare legislation and unify the work of the societies interested in the protection and development of children. This plan was suggested at the preliminary conference of the National Child Labor Committee held in Washington, D. C., last January. Among the subjects which will be discussed at the San Francisco conference are, beside the children's charter, child labor in the West, industrial education, and Federal legislation. A bill similar to the Palmer-Owen Federal child labor bill will be introduced in the next session of Congress, and plans for pushing this bill will be discussed at the San Francisco meeting.

Texas Surgical Society.—This society was organized recently at a meeting held in Houston, with Dr. James E. Thompson, of Galveston, president, and Dr. W. Burton Thorning, of Houston, secretary. Among the charter members of the society are: Dr. K. H. Aynesworth, of Waco; Dr. F. L. Barnes, of Houston; Dr. F. C. Beall, of Fort Worth; Dr. I. C. Chase, of Fort Worth; Dr. H. M. Doolittle, of Dallas; Dr. H. R. Dudgeon, of Waco; Dr. J. W. Hale, of Waco; Dr. W. G. Jameson, of Palestine; Dr. E. J. Reeves, of Dallas; Dr. Bacon Saunders, of Fort Worth; Dr. A. C. Scott, of Temple; Dr. C. S. Venable, of San Antonio; Dr. R. R. White, of Temple; Dr. James E. Thompson, of Galveston; Dr. Joe Becton, of Greenville; Dr. John T. Moore, of Houston; Dr. W. Burton Thorning, of Houston; Dr. J. B. Smoot, of Dallas; Dr. F. B. Paschal, of San Antonio; Dr. J. H. Reuss, of Cuero; Dr. A. B. Small, of Dallas.

An American Hospital Romance has been made public by the announcement of the marriage in Paris, on March 9th, of Dr. Benjamin Jablons and Miss Audrey Frances Jakobi, both of New York City. Doctor Jablons, who is serving with the American Hospital in Paris, will be recalled by our readers as the author of an interesting communication based on his experiences with the Servian army in the Balkan war (see NEW YORK MEDICAL JOURNAL for August 22, 1914). Doctor Jablons has also contributed a letter describing the American Hospital, which appeared in the JOURNAL for March 6, 1915, and has written a further report on the work of the hospital, which will appear in our next issue. Miss Jakobi, who is well known in New York, has spent the last seven years in Paris, rounding out her musical and artistic education. At the outbreak of the war, not being a nurse, she volunteered for social service among the wounded and it was while she was entertaining the patients at the American Hospital that she and Doctor Jablons met.

The Detection of Pulmonary Tuberculosis in Public School Teachers.—In cooperation with the city superintendent of schools, the Department of Health of the City of New York has devised a plan by which teachers suspected of tuberculosis will be examined by physicians of the department. The city superintendent of schools has approved the draft of a letter to be addressed to school principals, requesting them to report teachers who are in such physical condition as to be unable properly to do their work, and whom there is reason to regard as probable subjects of pulmonary disease. When such cases are reported, the department will arrange for medical examinations by diagnosticians trained in the detection of pulmonary disease. A woman physician will be detailed to examine the women teachers, if they request it. The time and place of the examination will depend upon the numbers to be examined, the location of the school, and of the residence of the teachers concerned. This new activity of the department of health has the double purpose of detecting incipient cases of tuberculosis in teachers and encouraging appropriate treatment; and of protecting susceptible children from undue exposure to unrecognized and therefore unregulated advanced cases.

Buffalo Academy of Medicine.—The regular meeting of the section in surgery was held at Orpheus Hall, on Wednesday evening, April 7th. A preliminary report on the results of heliotherapy in surgical tuberculosis at the J. N. Adam Memorial Hospital, illustrated by motion pictures, was presented by Dr. Clarence L. Hyde and Doctor Lo Grasso, of Perrysburg. Clinical results in operations on tumors of the bladder, by various operators for the past fifteen years, with a review of 1,588 cases, were reported by Dr. James Gardner, of Buffalo. A collation was served at the close of the meeting.

Prenatal Work of the Health Department during 1914.—During the year 1914 nearly forty per cent. of the deaths of infants under one year of age occurred during the first month of life. Practically all of these deaths were due to causes dependent upon the health of the mother before the child was born. In contrast to the reduction of the infant death rate in diarrheal diseases, there has been practically no reduction in the infant death rate due to the so called "congenital" causes, namely, prematurity, congenital debility, convulsions, malformations, and injuries at birth.

Failing a special appropriation in the budget, an effort was made last year through the agency of the Infants' Milk Stations, conducted by the Bureau of Child Hygiene, to help solve the problem presented by the stationary infant death rate due to congenital causes. The work undertaken consisted in having expectant mothers visited by nurses every ten days, early in pregnancy, and instructed by them in personal hygiene. After the baby was born the mother was visited every day until able to go to the milk station with her baby. Financial relief was secured when needed.

Association of Tuberculosis Clinics of the City of New York.—The next meeting of this association will be held on Wednesday evening, April 28th, at eight o'clock, in the Assembly Hall of the United Charities Building, 105 East Twenty-second Street. A specially prepared program has been arranged which will include a discussion of methods of diagnosis and treatment of tuberculosis, organization of work of physicians and nurses, and allied social activities. These subjects should appeal, not only to physicians and nurses actually engaged in tuberculosis work, but to officials connected with general hospitals which are maintaining special tuberculosis clinics and to the large group of lay individuals who are supporting the social work of the clinics through the women's auxiliaries. Others than members of the association are invited to attend, and it is hoped that the meeting will help to extend the knowledge of the work of New York's tuberculosis clinics.

The annual report of the association, which summarizes the study of the work of the various clinics made by the executive secretary during the past year, will be used as the basis for the evening's discussion.

The City Death Rate; Grippe Still Prevalent.—The mortality during the week just passed was noteworthy by reason of the very considerable increase in the number of deaths reported from all causes, the total having been 1,831 compared with 1,612 in the corresponding week of 1914, an increase of 219 deaths. The increase in the death rate was 1.39 point, which was equivalent to a relative increase in the number of deaths of 155. The most potent factor of this increased mortality was the prevalence of influenza in a more virulent form than has happened in some years, with a corresponding increase in the deaths from acute respiratory diseases and organic diseases of the heart.

There were 407 deaths from acute bronchitis, bronchopneumonia, and lobar pneumonia, this number being in excess by 143 deaths of the number of deaths reported from this cause in 1914. In addition, the organic heart diseases showed an increase of 42 deaths. The mortality from the infectious diseases, measles, diphtheria, croup, and whooping cough, was slightly in excess of that of the previous year. The prevalence of influenza made itself felt among persons of every age, but especially was the effect noticeable among people over 65 years of age, in which group the number of deaths was increased by 54; children under 5 years of age showed an increased mortality of 54 deaths, and between 5 and 65 years there was an increase of 111 deaths. In spite of last week's high death rate, the rate for the first fourteen weeks of 1915 was only 14.38 per 1,000 of the population against a rate of 15.57 during the corresponding period in the year 1914, a decrease of 1.19 point.

Pith of Current Literature.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

March 2, 1915.

Therapy of Croupous Pneumonia, by M. Kaufmann.—Optochin, ethyl hydrocuprein, a quinine derivative, is supposed to have a special influence on pneumococcic infections. In one hospital, the mortality under this form of treatment was 11.8 per cent. compared to about thirty per cent. with other methods of treatment. The results obtained when it is given intravenously are not very good as optochin disappears very rapidly from the blood. The manner in which it has been employed is to give four doses of 0.5 gram each of optochin hydrochloride daily. A case of transitory amaurosis caused a diminution in the dose to 1.5 gram daily, divided into four doses. Of importance in the administration is the equal distribution of the doses, which should be given both during the day and night. Individual doses should not exceed 0.3 gram, the total daily dose not exceeding 1.2 to 1.5 gram. The administration should continue for one or two days after the patient is free of fever. Cases treated in this manner showed excellent results, especially if treatment was instituted early in the course of the disease. The effect on the vision is to be closely observed.

A New Position in Esophageal Examinations, by Wilhelm Sternberg.—The factor which renders the performance of esophagoscopy difficult is the accumulation of secretion, mucus, sputum, blood and esophageal contents at both ends—the hypopharynx, where it causes dyspnea, and the lower end, where it interferes with the field of vision. To do away with this, various positions have been employed. Sitting, lying on the back, lying on one side, and a position midway between sitting and reclining have all been tried. A combination in which the patient is in the sitting posture during the first stage and lies on his back in the second stage has also been employed. All of these positions possess some points of advantage but they also have disadvantages. A method which has been used by the author is to have the patient in the abdominal position on an elevated table. The patient takes the knee-elbow position, pillows being placed under the knees and head reaching beyond the edge of the table. The advantages of this position are the removal of the danger of aspiration; the ease with which the field of vision can be kept clean; the doing away with the necessity of sponging and pumping; the fact that the examination can be continued for some time; the facility with which the landmarks are made out and the esophagoscope can be introduced and kept in place; the rendering of any assistance superfluous, the easy access to affections of the posterior wall, and, finally, the convenience of the patient.

Pneumothorax Following Wounds of the Lung, by C. Baumler.—It can be produced by shrapnel and bayonet wounds, etc.; also by blunt violence. Atmospheric air may enter the pleural cavity immediately or, if the elasticity of the tissues does not close the wound, it may enter subsequently, owing to the forcing in of air during inspiration. When caused

by blunt violence, the fracture of one or more ribs takes place with consequent injury to the lung. Hemothorax or hemopneumothorax may take place. Blood is absorbed rather slowly, while air is absorbed more quickly. If bacteria have entered they may give rise to the different forms of pleurisy. Pneumothorax is also seen in diseases of the lungs such as tuberculosis and septic embolism. When it occurs in this manner it is known as secondary pneumothorax.

WIENER KLINISCHE WOCHENSCHRIFT.

February 25, 1915.

Technic of Prophylactic Typhoid Vaccination, by P. Kirschbaum.—The objections to prophylactic vaccination at the present time are the resulting symptoms of local pain, headache, fever and general malaise which last from twelve to thirty-six hours. In some cases these symptoms are so severe that the patient does not present himself for the second of the two prophylactic injections. This objection holds good particularly in war camps as the soldiers are rendered unfit for duty for a period of two days. The author has employed the following technic to overcome this difficulty: The vaccine employed is a twenty-four hour agar culture of polyvalent strains of typhoid killed by heat at 60 degrees and containing about 600 million bacteria a c. c. Carbolic acid is added to make a 0.5 per cent. solution and 0.2 c. c. is injected as the initial dose. This is injected in the morning between nine and ten o'clock, the site of the injection being the left deltoid muscle. After a two weeks' interval the second dose of 0.8 to one c. c. is given, and after another week the third dose of one to 1.5 c. c. So far this method has had no bad results, and the agglutinating power of the blood is the same as when the methods formerly employed are used.

Vaccine Treatment of Typhoid, by Hans Eggerth.—A series of cases is reported in which typhoid vaccine prepared according to the method of Besredka was injected into the brachial vein in doses of 0.5 to one c. c. Of forty-eight patients, thirty-eight were cured, eight showed no effect, and two died. The injections were followed by an almost immediate rise in the temperature of from one to one and a half degree, which lasted from six to ten hours. At the end of this time the temperature fell by crisis, accompanied in many cases by profuse perspiration. Symptoms of collapse were never noted and there was a decided improvement in the cerebral symptoms such as headache, dizziness, etc. The best results were obtained in those cases which came under treatment during the first two weeks and which showed no complications. Of the two fatal cases, both of which were fatal within three hours after the injection, one showed evidence of cardiac weakness just before death. The entire forty-eight cases gave a positive Gruber-Widal and diazo reaction.

The Widal Reaction in the Diagnosis of Typhus Fever, by E. Weil and W. Spaet.—Three cases are reported in which the clinical diagnosis of typhus had been made and which reacted positively with typhoid bacilli. These cases could not be studied bacteriologically and it could not be determined whether a typhoid infection existed. The

authors studied two further cases which showed the petechial eruptions seen in typhus. The reaction of the blood in one case was positive with typhoid bacilli, negative with paratyphoid; five examinations of the stool had been negative, the sixth was positive. The patient died after five days and the autopsy showed the presence of typhoid ulcers. The examination of the blood in the second case showed a positive reaction with typhoid bacilli negative in higher dilutions; also negative with paratyphoid. This patient also died but an autopsy was not obtained. The possibility of either case being one of mixed infection of typhoid and typhus is not likely as the patients came from different places and no further cases of typhus were reported. The diagnosis of typhoid is at times difficult and the serological diagnosis should always be preferred to the clinical.

March 4, 1915.

Gangrene of the Lung Following Gunshot Wounds, by Emil Haim.—Three cases of gangrene of the lung are reported, two of which were cured; the other was fatal as the result of septicemia. The two cured cases were treated very conservatively, a sufficient number of ribs being resected to expose the gangrenous cavity and a small part of the gangrenous lung was removed. The lung was then tamponed and the dressing changed daily. The symptoms of gangrene of the lung after gunshot wounds are similar to those of gangrene of the lung from other causes. The fever is apt to last; is often of the septic type. The patients are usually in such poor condition that operative procedures have to be performed under local anesthesia.

Vaccines in the Prophylaxis and Therapy of Typhoid Fever, by C. Feistmantel.—The author, as the result of treating a series of cases with vaccines, concludes: 1. A dose of five loopfuls of a vaccine prepared from a weak strain of typhoid bacilli according to the method of Besredka, diluted to one c. c., may reduce the duration of the fever by one and a half to two weeks; 2, a rise of temperature occurring in the convalescence can be reduced by the administration of the proper dose of this vaccine; 3, there is no true abortive treatment as is alleged for the treatment of Ischikawa; 4, fresh cases give the best results; 5, the vaccine should be used as soon as possible after it has been prepared. The vaccine employed retained its full activity for a period of three weeks only.

Typhoid Therapy with Nonsensitized Vaccines, by Eugene Csernel and Adolf Marton.—A vaccine was prepared by growing from ten to fifteen strains of typhoid on agar plates for twenty-four hours and removing the growth by washing with 0.9 per cent. sodium chloride solution. The emulsion was diluted one to ten with Hayen's solution and counted in the blood cell counting chamber. Enough carbolic acid was added to make a 0.5 per cent. solution; the whole was then diluted with sodium chloride solution so that one c. c. contained fifteen million bacteria. Intravenous injections of from one to two c. c. were given. A reaction took place in from one half to two hours, consisting of a chill with a decided rise of temperature, which fell by crisis, the fall being accompanied by profuse perspiration. Vaccines are indicated in all cases in which a bac-

teriological diagnosis has been made. Cases in which the administration of vaccine is contraindicated are cases with severe abdominal complications, such as hemorrhage, perforation and cholecystitis; cases with irregular heart action; the so called ataxic and dynamic forms, and the delirious.

A Verminproof Outer Garment, by Mathilde and Rolande Grassberger.—The garment consists of seven distinct pieces; a pair of trousers, soles to go under the shoes, a piece for the chest, one for the back, sleeves, a hood, and a cap for the hood. Where the different parts overlap, as at the waist and in the axillæ, anise oil emulsion is sprayed. The garment is put on and taken off either in a vermin-free room or in the open air. After it has been put on it should be sprayed with some vermifuge and before it is removed it should be sprayed again. A five per cent. solution of lysol can be used for this purpose. The garment can be made of cotton or heavy linen and when rubber gloves and shoes are worn in addition protection is complete.

PRESSE MÉDICALE.

February 11, 1915.

Treatment of Functional Disturbances through Constriction of Nerve Trunks by Cicatricial Tissue, by P. Coryllos and R. Pecker.—Partial wounds of nerve trunks are frequent in modern warfare. In functional impairment and cicatricial inclusion of nerve trunks, the lesion was caused by small projectiles in ten cases and by shrapnel in one. Diagnosis was relatively easy. Characteristic signs are: Neuralgia after anesthesia; motor impairment; superficial scar over the nerve apparently involved; sharp pain, like the sting of a whip, at the moment of injury; fusiform cicatricial induration of the nerve opposite the superficial scar, tenderness at this point. Massage and electricity merely increase pain. All the patients were operated on under novocaine-epinephrine local or under novocaine lumbar anesthesia. The nerve was exposed, the cicatricial tissue in its trunk removed—frequently in a wedge shaped piece not extending completely through the nerve—the freshened surfaces of nerve tissue sutured together with fine chromic catgut, and the nerve surrounded with healthy muscle or fascia to prevent reformation of fibrous tissue. Excellent results were obtained in all but one case.

Secondary Diffuse Aneurysmal Hematoma as a Sequel to Wounds, by J. Tissot.—Five cases are reported in which secondary hematoma appeared from ten days to two months after the original trauma. A constant symptom, often preceding the local swelling, was sharp pain radiating throughout the limb and causing sleeplessness. There was pallor, but no fever—the best differential indication of hematoma from abscess. Absence of pulsation and of vascular murmur in the swelling, as well as persistence of the arterial pulse, were fairly certain indications of injury to a vein instead of to an artery. In two of the five cases, the injured vessel was ligated some distance above the point affected, in the others immediately above and below this point, with equally prompt and satisfactory results. Opening the hematoma and ligating the two ends of the traumatized vessel are recommended as the best means of avoiding secondary gangrene.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

February 9, 1915.

Value of Direct Electric Stimulation of Nerve Trunks during Operations on Wounded Nerves, by Pierre Marie.—A new, easily sterilizable electrode devised by Meige is described. Electric excitation directly in operative wounds is recommended—to identify nerve trunks, small or large, in a wounded area, to ascertain the likelihood of complete functional recovery, to secure the proper procedure in operation. Clinical experiment with the electrodes showed that excitation of the various aspects of a nerve trunk caused contraction of definite muscles or groups of muscles according to the sections of the nerve stimulated. Thus three separate groups of muscles responded, in the case of the sciatic, according to the aspect of the nerve stimulated. Suture of corresponding portions of a cut nerve is therefore required if the best functional results are to be obtained.

RIFORMA MEDICA.

February 27, 1915.

Ratbite Disease, by A. Perugia and U. Carchidio.—This disease, known in Japan under the name of sokodu, seems to present a syndrome peculiar to itself. It is caused by the bite of certain species of rats and it appears that it may be transmitted by animals which devour rats, such as the cat and the weasel. Incubation is from one to five weeks even up to two months, although the wound usually heals promptly. The onset of the disease is almost always sudden with weakness, anorexia, chills and fever. The original wound, already healed, becomes painful, red, and swollen and it may even become necrotic, while there is a lymphangitis producing inflammation of the glands of the region involved. The fever, high at first, becomes intermittent. The severe form of the disease has a mortality of ten per cent. There is often a zone of erythematous or macular plaques surrounding the site of the ratbite. The principal internal lesions are in the kidneys and the central nervous system. The renal condition produces edema of the extremities which may go on to anasarca, coma, and death, whilst the nervous involvement gives, first, an exaggerated and later a diminished knee jerk with alteration of sensibility and motor power. Ogata has found by the inoculation of an infected lymph gland into rabbits that the internal organs—the spleen and the kidneys as well as the blood—contain an organism which he calls *Sporozoon muris*. Salvarsan, while not absolutely specific has given extremely good results in the treatment of this condition.

March 6, 1915.

Tubercle Bacilli in the Blood Stream, by T. Lucciarini.—The first investigator along these lines seems to have been Villemin who in 1868 obtained positive results with the inoculation of blood from cases of miliary tuberculosis. The method most commonly used at the present time is a modification of the original Schnitter method. Another method is Kinyoun's antiformin method. Apparently at the present moment with modern methods it seems possible to demonstrate the presence of tubercle bacilli in the blood stream not only in the miliary form of the disease but also in the other forms.

Myeloid Leucemia, by G. Rummo.—The fundamental signs of the disease are enlargement of the spleen and alterations in the blood. Fundamental but of less importance are the glandular enlargement and pain in the long bones. The secondary symptoms are the anemic syndrome, fever, splenic pain, and hemorrhages. Treatment is now largely pursued by means of benzol beginning with a dose of 0.25 gram a day, increasing to the maximum of two grams a day. Other good results have been obtained by the use of radioactive substances such as radium and thorium X. The nuclein preparations are very useful, of which oxidasol may now be had commercially in tubes of two to four cm., one of which is a daily dose.

Value of the Oculocardiac Reflex, by N. Orlando.—Compression of the ocular bulbs in normal subjects produces a slowing of the pulse rate of from four to fourteen beats a minute. After three or four repetitions of the compression the reflex disappears. There is also a daily variation in the same subject and Orlando has never seen an inversion of the reflex in a normal subject. Age has a noteworthy influence on the determination of the phenomenon, children reacting with a much more marked bradycardia than adults. In women the reflex is more marked than in men, although on the other hand it is more readily exhausted. Consequently, we may accept the oculocardiac reflex as a normal phenomenon, where bradycardia is a normal result, a reflex which is readily exhausted and which when prolonged may stimulate the sympathetic and cause tachycardia. It is normal in valvular heart disease, as in such cases the extracardiac nerve supply is not impaired. In arteriosclerotic aortic lesions, including those of saturnine or syphilitic origin, there is an absence of the reflex, likewise in tachycardia from affections of the vagus whether peripheral or central. It is very marked in epilepsy, varying with the intensity of the disease.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

March 14, 1915.

Chemical Therapy of Cancer, by L. F. Ballester.—Surgical treatment of cancer presents, apart from the inoperability of some tumors, the inconvenience of a possible recurrence of the neoplastic process, added to the aversion of the average patient to surgical measures. Ehrlich has demonstrated the possibility of the destruction of parasitic causes of disease and has shown the way to investigators of the treatment of cancer by chemical means. The hypochlorites were first used by Becker hypodermically in the form of chlorinated water. These injections are painless and produce no local reaction. Although this method has given some favorable results it is not reliable. Adolph Zeller has made use of silicic acid and the silicates by mouth in doses of 0.2 gram. He had fifty-seven patients; forty-four were cured, ten improved and three died. Reicher uses adrenaline injected around the circumference of the tumor. Formol has been employed by Laurent injected directly into the tumor, producing great local reaction followed by absorption. This method is extremely painful and liable to produce intoxication and is applicable to cutaneous cancers only in the early stage. Salvarsan has been used by Czerny

and Kaam without result. Atoxyl has given negative results in the hands of Blumenthal. Selenium eosin has given variable results. The colloidal metals have lately been enthusiastically advocated in cancer. Izar asserts that he has greatly diminished the volume of large sarcomata and cured completely small ones by injecting 0.5 c. c. of colloidal copper. Colloidal selenium is one of the least toxic metals which have been used in cancer. Bougant has used it in inoperable cases of cancer and found that the maximum effect was obtained after from twenty-five to fifty injections.

BRITISH MEDICAL JOURNAL

March 13, 1915.

Treatment of Diabetes mellitus with Casein and Cream, by R. T. Williamson.—In a tumbler one tablespoonful of casein is thoroughly mixed with an equal amount of cream and either hot or cold water is stirred in to fill the glass. During the treatment the patient should be kept at rest, preferably lying down, and is to take one tumbler of this mixture every two hours from 8 a. m. to 10 p. m. It may be given either hot or cold to suit the patient's preference, and it may be flavored with nutmeg and sweetened with saccharin if desired. In some cases this mixture will produce nausea no matter how taken; in such it should be discontinued at once. The preparation contains protein and fat with a minimum of milk sugar. The great value of this treatment is that it will often remove the sugar from the urine when the ordinary rigid diabetic diet has failed. Frequently the results are so prompt that the sugar will disappear in two or three days. If the patient bears this diet well without showing signs of exhaustion, it should be continued for several days or two weeks, when there can be a gradual addition of other foods. Often the patient will be found to be able to take the ordinary diabetic diet, or even one more liberal than that including some carbohydrate, without a return of glycosuria after he has been on the casein and cream mixture for some time. If there is a return of sugar excretion with relaxation of the diet this will usually develop slowly and will often be less than before the treatment. The method has the advantage of being quite inexpensive and easy to follow. It has not been found of much value in most cases of very severe diabetes with acetone and diacetic acid excretion, though even in these it has sometimes given good results with total disappearance of the acidosis. Unfavorable symptoms, weakness, exhaustion, mental depression, dyspepsia, or diarrhea, appear in about twenty per cent. of patients under this treatment and call for its immediate discontinuance. The patient should be under daily observation for a week during the beginning, and the urine should also be examined daily at this time.

The Early Administration of Vaccine in Pneumonia, by W. H. Wynn.—The early stage of pneumonic infection, before the localization of the process in the lung, is a septicemia, and Wynn regards such a condition as particularly suitable to vaccine treatment. He uses a stock vaccine prepared directly from the first culture of a virulent strain of pneumococci and gives doses of 100 million organisms. Fifteen cases are reported in which the

first injection was made not later than the third day after the onset of symptoms. In these cases, one patient was pregnant and died in labor, and one had an empyema. In the rest the course of the disease was greatly ameliorated. It was often observed that with definite large consolidation the patient would be free from elevation of pulse rate and temperature and the respiration would remain normal. Resolution was hastened, as was the whole course of development of the pulmonary lesion. In no case was consolidation prevented by the injection. There was always marked improvement in the course of general symptoms.

The Action of Calcium Salts, by Charles O. Jones.—Studies were conducted on rabbits to determine their power of excreting calcium salts and the channels by which the excretion took place. Calcium chloride was injected intravenously in varying amounts and it was found that when small doses were used excretion occurred by the kidneys, calcium appearing in the form of phosphates, carbonates, and oxalates. With larger doses excretion also occurs through the intestinal tract. Still larger doses throw the kidneys out of action and all excretion takes place through the intestine until the concentration falls sufficiently to permit of the kidneys again taking part. With these concentrations calcium is excreted in the intestines in the form of inorganic salts, but with greater concentrations it appears as calcium soaps. Its excretion through the intestine is associated with an astringent action, causing diminished intestinal action or paresis. Intravascular clotting occurs with exceedingly large doses.

March 20, 1915.

Cerebrospinal Meningitis, by A. Lundie, D. J. Thomas, and S. Fleming.—The authors state that this disease may be as protean in its manifestations as malaria. They divide it into three distinct stages, from the mild to the severe, by direct transition; while any case may run its course and end in recovery without going beyond its own limits. The mildest form or stage of the disease is the catarrhal; the diagnosis is usually made by accident during routine examination, but the disease may be suspected if it occurs in an epidemic. The symptoms and signs are merely those of an ordinary pharyngitis; its nature can be determined only by means of cultures taken from the throat. The second stage or type of the disease is that in which there are added to the foregoing, herpes of the lips, more marked catarrh of the upper respiratory passages, some rise of temperature, and possibly some mental confusion. This is the septicemic stage, and the organisms are already in the blood and may occasionally be cultivated from the urine. In this stage the reflexes are exaggerated; lumbar puncture may reveal a few meningococci in the spinal fluid. The third stage is that of typical meningeal involvement with the well known symptoms of meningitis. In the first two stages the disease is more widespread than is usually suspected; in fact, those who are infected and going about may readily transmit it to others, or may suddenly manifest the more serious meningeal form. Autogenous vaccines seem to exert a beneficial influence in the earlier stages; local treatment has little effect.

Cerebrospinal Meningitis, by Joseph A. Arkwright.—Cerebrospinal meningitis probably is usually spread by means of healthy carriers who have been in contact with cases. Examination of the throat showed that a large proportion of people exposed harbor the specific organisms for varying periods of time up to more than two months. The great importance of the carrier as the means of the spread of the disease is seen by the fact that of 887 men in a battalion in which there were four cases of meningitis no less than thirty-three, or 3.7 per cent., had the organisms in their throats. It would seem more accurate to say that epidemics of cerebrospinal meningitis arise when carriers become numerous in any community, rather than to say that carriers become numerous in an epidemic.

Theory and Technic of the Use of Radium Emanation Needles, by Walter C. Stevenson.—The first great advantage of capillary glass tubes of radium emanation for insertion into needles is the great economy of radium; secondly, the dose is under accurate control. The use of filters or screens when the salts of the metal are employed is merely a means of securing uniformity of irradiation. By means of needles, inserted parallel to one another, in the tumor mass, the action is concentrated upon the malignant tissue cells. Needles can be inserted without operation or the employment of an anesthetic, which is seldom the case when applicators of the salts of radium are used. As the needles become exhausted, which requires about eight days, they may be used successively for application in several cases requiring successively smaller doses.

Injury to an Eye from Bursting Golf Ball, by R. H. Elliot and W. S. Inman.—Another case of almost total loss of an eye is here reported in a child of seven years who was watching an adult trying to open a golf ball with a knife. The soft core suddenly burst, sending its powerfully caustic contents over a yard and into the eye of the child. The damage to the eye was instantaneous and recovery of vision was almost nil nineteen weeks after the accident. (See JOURNAL, August 1, 1914.)

LANCET.

March 13, 1915.

Toxic Jaundice Due to Tetrachlorethane Poisoning, by William H. Willcox.—An outbreak of this intoxication was observed among the workers in several aeroplane factories due to the presence in the varnish used of tetrachlorethane as a solvent. Those most exposed to its vapor were the most severely affected, but others in the same room were also poisoned. Fourteen cases have been observed, four of which were fatal. The symptoms consist in general malaise, drowsiness, anorexia, nausea, bad taste in the mouth, constipation and some headache continuing for several days. There may be abdominal discomfort, but this is not constant. There is next a definite jaundice with pale stools and bilious urine; vomiting usually becomes frequent and marked. Mental confusion, stupor, or delirium may also appear. A purpuric rash is common, hemorrhages may occur, and the urine may be suppressed. In the more severe acute cases there may be hematemesis and convulsions, passing into coma and death. The symptoms will slowly clear up if the patient in

the early stages is removed from exposure to the poison, but some weeks elapse before the jaundice fades. The presence of deep jaundice is of bad prognostic omen. Early in the poisoning the liver is usually palpably enlarged but not tender. Later, as recovery progresses, the liver shrinks and there may be definite signs of cirrhosis with ascites. There is no anemia, and fever is absent. The condition is evidently one of toxic jaundice with the greatest action of the poison on the liver tissue. Prevention, by means of adequate ventilation of the factories, is of much greater importance than the treatment of this condition. If the patient is removed early the prognosis is good and there is little treatment required. The action of tetrachlorethane was studied on animals and found to produce lesions in the liver similar to those found in man, namely fatty degeneration and cloudy swelling in the early stages followed by cirrhosis. The kidneys also showed fatty and parenchymatous degeneration.

March 20, 1915.

On Bacillus proteus Infection, by Cuthbert S. Wallace and Leonard S. Dudgeon.—A man aged sixty years became infected after an operation upon his bladder; he manifested high fever, chills, thrombosis of the deep veins of the leg, of the femoral vein of the same extremity, and finally symptoms of pulmonary embolism. Culture of the blood and the urine yielded *Bacillus proteus*. The organism cultivated was tested upon animals and found to be markedly pathogenic. A vaccine was prepared and given in doses beginning with fifteen million and ascending to 500 million. From the first the vaccine injections produced distinctly beneficial results, especially in regard to the thrombosed veins. The rapid recovery of this patient is attributed to the effects of the vaccine administration. On the strength of this case, and in view of the contrary general opinion, occasion is taken by the authors to cite the literature of other cases of proteus infection and to call attention to the fact that this organism is by no means innocuous in man. It is common in the urine of cases of cystitis, and in gangrene when not emphysematous, in infected sinuses, and various chronic localized infective processes. In the latter cases it is likely to lead to most extensive suppurative lesions of the skin. Although the infections by this organism are usually mild, they may at times run an extremely severe course, as is well illustrated by the subject of this report.

BOSTON MEDICAL AND SURGICAL JOURNAL.

March 25, 1915.

Mortality after Prostatectomy, Based on a Study of 229 Fatal Results, by Benjamin Tenney and Henry M. Chase.—The greatest danger of prostatectomy is uremia, or conditions closely associated with it. After examining a patient we should be able to say whether he is a good, fair, or poor risk with reference to this condition. If he is not in the first class we should try to put him there before operation, or at least as near it as possible. The second great danger is hemorrhage and shock. Possibly in attempting to avoid shock by a rapid operation, hemorrhage and shock are produced by being needlessly rough. When hemorrhage has been thoroughly controlled, bleeding seldom starts again un-

less the means of control is removed too soon. The third serious state is embolism, which may also be the cause of some pulmonary complications, and it is suggested that drainage tubes are responsible in some cases.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

March 27, 1915.

Therapeutic Use of Cold, by B. F. Howard.—While the nervous system regulates all the organic processes and is itself dependent on the other cells of the body for existence, they are not able to function without it. Thus the treatment of disease includes that of the nervous system of the patient, and no medicine, method, or device is comparable with cold when it is necessary to whip up a flagging nervous system. In attempting to obtain the beneficial effects of cold, the physician must consider the personal equation of his patient as well as his disease; it is probable that there are few exceptions to the rule that all cases in which there seems to be an indication for the use of cold can be safely treated by means of baths, and that patients can often be trained from a condition in which the reaction is poor to one in which there is a good reaction. Although the various measures included in the technic of hydrotherapy may be used with advantage, in all three of the stages of tuberculosis, the treatment with climatic cold is not so generally applicable. Certain cases do not do well in cold climates, though some of these might, if the patient was educated to the proper degree of reaction by suitable hydrotherapeutic procedures. As we have in cold a powerful neurovascular tonic particularly adapted to chronic forms of disease, such as tuberculosis, climatic cold is often the most practicable form available, this being particularly desirable for those whose forefathers lived in a climate colder than that in which the patient now finds himself. When the change is not extreme, as in migrating from Maine or Minnesota to Southern California, the effect may not be apparent in the healthy in one generation; but when tuberculosis is present, especially in the second generation, a new education of the neurovascular system is of prime importance; such persons should resort to hydrotherapy, higher latitudes, or greater altitudes. In tuberculosis cold is often indicated as a neurovascular and general tonic; it may be used in some form in all stages, and early cases should be given the benefit of the therapeutic use of cold water or cold air, or both.

Probable Cause and Local Treatment of Epilepsy, by C. A. L. Reed.—The author has become convinced that epilepsy is caused by a specific infection, probably a bacillus of the gas forming series; infection is found in the intestinal canal, primarily in the duodenum, always finally in the colon; it may be superficial, intrafollicular, or interstitial, or may involve the blood as a propagating medium; the infection seems to be made effective primarily through constipation of mechanical origin; relief of the mechanical cause of the constipation, with restoration of bowel function, results in the cure of epilepsy in cases in which the infection is probably superficial; the principle of immunization holds good in the treatment of cases in which the infection obviously lies deeper, in all of which auto-

genous vaccination may well be applied as a matter of routine.

Effect of Various Procedures on the Passage of Liquids from the Stomach, by C. H. Neilson and S. T. Lipsitz.—From a series of experiments in healthy young men it has been found that water is emptied from the stomach somewhat more rapidly during exercise than when the subject remains quiet, and that posture seems to have a direct influence on the emptying power of the stomach. Lying on the right side causes the most rapid evacuation and lying on the left side the slowest, while lying on the back causes a somewhat more rapid emptying than the upright position. At 45° C. water leaves the stomach somewhat more rapidly than at 10° C. Normal acidity causes a more rapid emptying than hyperacidity artificially produced by the ingestion of hydrochloric acid, while artificial alkalinity produced by means of sodium bicarbonate causes the stomach to empty itself slightly less rapidly than under normal conditions, though more so than during hyperacidity. All these factors, it is believed, may have considerable significance in their bearing on clinical experience.

A Study of Streptococci from Pyorrhœa alveolaris and from Apical Abscesses, by T. B. Hartzell and A. T. Henrici.—It has been found that streptococci of the viridans group are constantly present in periodontal suppurative lesions. While such streptococci are normally present in the saliva and on the buccal mucous membrane, it is believed that by the technic employed contamination from this source has been excluded. These streptococci are normally of low virulence, but at times are able to produce lesions of the heart, aorta, kidneys, and joints, some of which closely resemble the lesions of rheumatism. From the evidence thus far obtained, it cannot be stated that these streptococci bear an etiological relationship to dental abscesses and pyorrhœa, but with respect to metastatic infections, it is important to know that such organisms are constantly present in lesions presenting a large ulcerated surface; through which they may, and probably do, frequently pass into the deeper tissues and the blood stream.

MEDICAL RECORD.

March 27, 1915.

Clinical Significance of Auricular Fibrillation, by Hubert Schoonmaker.—Of frequent occurrence, especially in mitral stenosis and in the senile heart, auricular fibrillation is the common cause of cardiac arrhythmia, characterized by complete irregularity. It can be recognized without the aid of recording instruments, if one is careful to discern physical signs. An arrhythmia in which there is no regularity, no sequence, with the heart rate above one hundred, and uninfluenced by treatment, together with the positive or ventricular venous pulse, as seen in the neck, is almost certainly due to auricular fibrillation. The prognosis in auricular fibrillation depends on the degree of myocardial efficiency. If the ventricular rate can be kept sufficiently low, so that cardiac fatigue and dilatation are avoided—the functions of tonicity and contractility being active—the prognosis as to life and comfort is good. As regards the senile heart of the sclerotic type, this is

especially true; but in mitral stenosis the prognosis is not so favorable. In the treatment the essential point is how best to conserve myocardial energy. The chances are that no treatment will have any effect on the rhythm, but with slowing of the rate under digitalis the number of forceful systoles should become greater and, conversely, the number of small and weak ones less. While digitalis is of but little service in tachycardia or arrhythmia from other causes, it is of almost specific value in controlling the heart rate in auricular fibrillation. As, however, angina pectoris may be induced by digitalis, the drug should in auricular fibrillation, especially in elderly people, be given cautiously, yet to effect.

The X Ray as an Ideal Local Remedy for Eczema, by I. W. Ballard.—The explanation of the entire range of x ray therapy may be summed up in a few words: Repeated exposures to the x ray impair the vitality of all cells at the point at which the rays are absorbed, and rapidly growing cells are many times more susceptible to the rays than normal tissue cells. The substance of a soft tissue standing prominently above the surrounding surface is perceptibly contracted by exposure to the x ray. It has been observed by all having experience with the rays that, following a series of exposures, the skin becomes atrophied, the hair follicles and sweat glands inactive; while pain is relieved to a remarkable extent in inflammatory and malignant conditions, conditions which emphasize the presence of rapidly growing and immature cells. These facts point strongly to one effect, in particular, of the action of the x ray, namely, the causing of contraction of cell protoplasm. Such contraction of cell protoplasm can have but one result, and that is local anemia, the sequence of the contraction of vascular tissue. The x ray burn, the most difficult of all burns to heal, is the result of a profound anemia of the involved tissues. The x ray produces inhibition of the circulatory and, consequently, of the nutritive processes. In eczema is found one of the richest of its several fields of therapeutic employment. Not only is it here an ideal treatment, in that it is cleanly, certain, and reasonably rapid, but it affords one of the best instances of the application of a remedial measure with certain, definite action, to the relief of a certain, definite, pathological condition. Eczema is distinctly a protean disease, not alone in its clinical manifestations, but also in its causes; yet all eczemas have certain characteristics in common. Thus, all are inflammations of the skin, acute, subacute, or chronic; all involve the epidermis, rete mucosum, or corium, and all appear as erythema, macules, papules, vesicles, pustules, or fissures. Its pathology always consists in a circumscribed or diffuse hyperemia with dilatation of bloodvessels and edema, together with cell infiltration and proliferation. It is exactly such pathology that requires a form of local treatment which will inhibit the congestion and dilatation of bloodvessels, retard the rapid cell metamorphosis, and soothe or stimulate according to the indications present. The soothing process is accomplished by means of long exposure to a soft tube, and the stimulation by short exposure to a hard tube. The technic is not difficult, while the satisfaction from the method is great.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES

March, 1915.

Gastric Ulcer, by J. B. Deaver.—All must agree that treatment is aided by knowledge of both predisposing and provocative causes of the condition. Direct traumatism, nervous and vascular conditions aided and abetted by the gastric juice, particularly when too acid, have been the basis of most theories; these have not stood the clinical test nor sufficed to explain revelations of the aseptic scalpel. There is no doubt that peptic ulcers are caused by some form of toxemia or infection, and experimental evidence is not lacking as to the role which toxemia, whether metabolic or bacterial, may play. If we admit that appendicitis is always caused by infection, and that it is the most common intraabdominal disease, we must admit that the appendix is, consequently, the most common avenue by which infection reaches the abdominal circulation. Granting this, we have the keystone of the arch of knowledge of intraabdominal diseases which are always the result of an infection. Deaver believes that the appendix is responsible for liberating the infection, which in turn causes gastric as well as duodenal ulcer and other forms of upper abdominal disease in a vast majority of instances. At his hospital clinic, he has observed the almost constant association of chronic appendicitis and gallbladder disease with duodenal and gastric ulcer, and the same has been noted by others. That infection from the mouth, such as that resulting from pyorrhea, may be the exciting factor in the causation of gastric ulcer is true perhaps in a small proportion of cases, and doubtless there are many portals of entry for infection; but it suffices to say that we are warranted in assuming that acute or chronic infections, with the resulting toxemia or bacteriemia, are capable of producing and do produce, under clinical conditions, gastric and duodenal ulcerations. We are concerned as much with the factors keeping the ulcer from healing as with those which give rise to it; such as general health conditions, exciting causes in the muscular activity of the stomach, action of the gastric juice upon an eroded surface, and infection planting itself upon the bed of the ulcer. That there is a strong tendency for simple gastric ulcers to heal there can be no doubt. Well directed medical treatment will succeed in curing most acute ulcers and a fair proportion of those on their way to chronicity, and in the absence of severe complications, such treatment should always be given a fair trial before surgery. Ambulatory treatment will rarely be successful except in the simple form of ulcer; in the chronic types, if anything is to be expected from medical treatment, it must be radical, demanding from four to eight weeks' rest in bed and most careful feeding. The explanation of recurrent attacks, extending perhaps over many years, is to be found in the fact that at no time was the ulcer healed. Attempts at healing by medical treatment with the best means available is justified in all cases except those complicated by perforation, recurrent hemorrhage of sufficient moment to cause a material drain upon the patient's health, or persistent indigestion which does not yield to intelligent treatment. The marked tendency of cancer to develop on a chronic ulcer base must be borne in

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mind, and all such cases are properly to be regarded as disastrous medical failures. The conditions mentioned being the correct clinical indications for operation, the next thing to be decided upon is the most appropriate surgical procedure in any given case.

Severe Jaundice in the Newborn Child a Cause of Spastic Cerebral Diplegia, by W. G. Spiller.—Among the many causes of arrest in the development of the brain, and consequently of spastic cerebral diplegia, severe jaundice of the newborn does not appear to have been recognized, and Spiller has observed four cases in which this was believed by the parents to have had an etiological relation to cerebral diplegia. The first was that of a female child, three years old when seen, who could not talk or walk alone. All movements of both the upper and lower limbs were awkward, and there were choreic movements in the whole body. The limbs were poorly developed and rigid, and both feet turned inward. The head at times was held to the left. In the other three cases described the children when first seen were respectively sixteen months, two years, and nearly four years, old.

ARCHIVES OF OPHTHALMOLOGY

March, 1915.

Removal of the Eyeball; Fat Implantation, by Harry S. Gradle.—The writer maintains that the implantation of fat into the eviscerated scleral capsule far surpasses the results that can be obtained by any other method, producing a large, freely movable stump of living tissue, distinctly elastic in character. It is advisable to implant autogenous fat into Tenon's capsule, or into the scleral capsule, in every case of removal of the eyeball by enucleation or evisceration, except in the presence of acute infection of the coats of the eye.

Operative Treatment of Retinal Detachment, by A. Elschnig.—The observations of the writer are summarized as follows: Operative treatment is indicated in all cases of detachment of the retina that do not yield to conservative treatment within six weeks, with the possible exception of those in which irritation of the iris appears a short time after the detachment has occurred, not including the cases of detachment following an old iritis. The operative procedures considered are scleral puncture with injection into the vitreous, and Mueller's scleral excision. The less severe procedure should be tried first, and if unsuccessful should be repeated without too great an interval of time. If still unsuccessful scleral excision should be performed. This operation should be employed primarily only when large tears are visible in the retina. Operative interventions should not be undertaken too closely together; at least six weeks should intervene. The technic, not the method, should be blamed for postoperative irritations of the iris and opacities of the lens. Ironbound operative indications and prognoses cannot be established until the causes of detachment of the retina are absolutely confirmed.

A Method of Preserving Macroscopic Eye Specimens in Their Natural Colors, by R. Greef.—The eyeball is hardened for from twelve to twenty-four hours in a five per cent. formalin solu-

tion; it is divided and placed for ten minutes in seventy per cent., then eighty per cent. and ninety-six per cent. alcohol, and finally in Pick's preserving fluid, 500 parts of distilled water, 150 of sodium acetate, and 250 of glycerin. Before placing it in this last solution the specimen should be glued fast in a suitable glass jar. The back of the eyeball, which is the surface to be glued, is placed for a few minutes in distilled water, and then carefully dried. A little eating gelatin is dissolved in a glass and the specimen is glued by means of this to the glass wall or plate on which it is to rest. The vessel is then filled with a preserving fluid and the margin of the glass on top luted with the adhesive mixture. Care must be taken that no air is admitted.

SOUTHERN MEDICAL JOURNAL.

March, 1915.

Malaria Carriers and Spread of Malaria, by C. C. Bass.—When an individual has become infected with malaria to such an extent that the number of parasites present, or the toxin produced, is sufficient to cause clinical symptoms, with each paroxysm the number increases, unless some influence is brought to bear which interferes. Conditions in the body may be such as to permit the production of an immense number of plasmodia; when a much smaller number are produced only ordinary clinical symptoms result; or insufficient asexual reproduction may occur to cause clinical symptoms. Whenever this point is reached the parasite is in danger of being destroyed, so far as this patient is concerned, and nature's more resistant form, the gamete, is produced. In most persons small doses of quinine will cause the production of gametes, and insufficient treatment with quinine makes malaria carriers. They are carriers for whom the physician is often responsible. A much larger number of carriers apparently possess enough resistance to prevent clinical symptoms; in them some gametes are produced for long periods of time. If such individuals should have their general vitality greatly lowered, they have clinical malaria; otherwise they remain well. To every clinical case of malaria there are several of these carriers. A case of malaria when cured, may relapse; there are several carriers perhaps in the house the patient lives in, members of his own family infecting mosquitoes, which in turn may reinfect the patient at any time. The ideal way to deal with the situation would be thoroughly to examine the blood of all persons in the house, and treat the carriers, but as in most instances this would not be practicable, the next best thing would be to consider all members of the household probable carriers, and treat them as such. Such measures carried out during the cold season are more successful, because mosquitoes are not active carriers at that time.

Estivoautumnal Malaria Treated with Quinine Intravenously, by T. E. Wright.—In the light of our present knowledge it is justifiable to conclude that the intravenous use of quinine, in doses of fifteen grains in a dilution of from 250 to 300 c. c. of saline solution, in the hands of a careful competent physician, is safe; the discomfort to the patient is so slight as to be negligible,

so that in this respect the method is much to be preferred to quinine by mouth or hypodermic injection. The number of doses for the different types of malaria, the proper time to be allowed between doses, the exact dose and dilution necessary and safe, and the permanency of relief of symptoms, are problems to be worked out; relief from malarial symptoms may be obtained very promptly, safely, and constantly by this method. Within thirty-six hours after the first infusion the majority of the patients treated described their improvement in general feelings and appetite in very satisfactory terms, and so enthusiastic did many of the convalescents become that they insisted on a second or third infusion before going back to work. Living in a malarious district, these patients had frequently taken quinine by the mouth for previous attacks, and their comparison of the two methods was decidedly in favor of the intravenous.

CHINA MEDICAL JOURNAL

January 1915.

Motor Tics, by A. H. Woods.—Motor tics are complex movements involving several or many muscles. They are such movements as one often makes with a definite purpose, for instance, to relieve the pressure of an ill fitting garment, to change the position of a cramped limb, or to free the lips or eyelids when they feel dry or stick together (purposeful grimaces). Of course, so long as the act is performed after proper provocation, so long as it produces the right result, it is normal; but when it continues after the call for it has ceased, it becomes a tic. Tics and choreic movements are often confounded in diagnosis. In chorea the movements are irregular, nondescript, not coordinated in any useful sequence. Observing a choreic patient, one thinks of some irritant affecting a few or many cells or fibres at irregular points without any relation to an existing mechanism; thus producing single contractions or uncoordinated jerks. In motor tics the excitant comes in orthodox routes and affects the whole of a coordinated mechanism, forcing it to go through its proper performance. The case reported was characterized by numerous and violent contractions of the abdominal wall and diaphragm. In the treatment drugs are of no specific value. Hypnotism would be effective so long as the hypnotist was at hand, but would probably weaken the patient's voluntary control, upon which permanent cure must depend. It is best to isolate such a sufferer and give him interesting work. A thorough examination should be made to establish the absence of tabes or other organic cause, and if, after an impressive examination, the physician can convince the patient that life is not endangered, and that he can go on working even though the spasms should continue, the fear which is the worst element of the disease, and also the worst obstacle to its cure, can be eliminated. Of course, the original cause of the movements, if it persists, must be removed. An important resource is the restraining gesture: the patient should be taught some appropriate movement which is so selected that it will prevent the usual muscular contractions.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held at the New York Academy of Medicine, December 1, 1914.

The Vice-President, Dr. E. G. ZABRISKIE in the Chair.

Brain with Double Frontal Abscesses.—Dr. L. CASAMAJOR reported this case, the history being furnished by Dr. E. J. Smith, of Larchmont, N. Y. The patient was a mechanic and inventor, fifty years old, whose family history was negative. Between the ages of twenty and thirty years he had suffered from several severe attacks of articular rheumatism, with heart complications. The patient had always been very active as a young man, and at one time was a long distance bicycle rider. Until about twenty years ago he used alcohol habitually and to excess, but for fifteen years preceding his death he had been a total abstainer. He smoked constantly and used chewing tobacco daily. During the past ten years he had worked very hard at his trade and had accomplished a great deal in a mechanical line. He took no recreation excepting a few days each summer, when he did some yacht racing. The exact date of the onset of his present illness could not be fixed. He was in the habit of receiving osteopathic treatment for minor ailments, and was under the care of an osteopath when he came under Doctor Smith's observation March 10, 1914. At that time the patient complained only of a slight frontal headache and of being unusually tired. He had the appearance of being slightly jaundiced. The pupils were contracted, reacting slowly. The tongue was heavily coated and the breath offensive. The temperature was normal; pulse, 60 and full. On his first day in the hospital he refused to stay in bed; he wished to go to business and insisted on smoking his pipe. On the following day he kept his bed and abstained from tobacco. He remained in his usual jovial mood and his symptoms were such as one would expect in a case of catarrhal jaundice. His condition remained practically unchanged for four days, without improvement in appetite, appearance of tongue, etc., in spite of active purgation.

On the fifth day it was observed that he was quite indifferent to his surroundings and very talkative. His headache had disappeared almost entirely and he still had nothing to complain of. When left alone he talked and whistled, and was not at all disturbed when he soiled the bed by an involuntary defecation. His pulse remained slow, and his rectal temperature on the fifth day was 101° F. The urine was stained deeply with bile; it contained a trace of albumin; no sugar; there was a marked indican reaction and a few hyaline casts. No complete blood count was made, but a differential count showed seventy-nine per cent. polynuclears. The stools were offensive and lighter in color than normal. The pupils remained contracted and sluggish, acting equally. The ears showed nothing abnormal and there was no nasal discharge. The patient remained in practically the

same condition for another twenty-four hours, appearing indifferent when he was alone, but acting quite rationally upon being questioned. There was no paralysis and the reflexes were normal, excepting the pupillary. His temperature, on the evening of the sixth day, was 101° F. in the rectum; pulse, 54; respirations, 18. At 8 a. m. on the seventh day after his admission, he suddenly had a chill, his rectal temperature rose to 106° F., he became comatose, had Cheyne-Stokes respiration, and died in three hours. Two days prior to this patient's death his family was advised that the symptoms pointed to some unusual brain lesion, the exact nature of which was not clear.

The brain was removed, and upon its removal about half an ounce of foul smelling pus escaped through the right frontal lobe. Further exploration showed a double frontal abscess, undoubtedly primary on the right side and extending through the corpus callosum into the left frontal lobe. No other abnormality was found. There was no pus in the ventricles; no internal hydrocephalus. The pus found in these abscesses contained *Bacillus pyocyaneus*. The infection from this organism, Doctor Casamajor said, was, according to Oppenheim, most often hematogenous and was one of the commonest causes of brain abscess. The meninges in this case, as well as the frontal and other sinuses, showed no evidence of involvement.

Pavor nocturnus.—This paper, by Dr. A. Stern, will be published in the JOURNAL.

Pain and Tenderness in Spinal Disease and Its Surgical Treatment.—Dr. CHARLES A. ELSBERG showed a number of cases and emphasized the fact that there was a marked difference between the cervical and the dorsal spinal roots in their structure as well as their course; the cervical roots originated from the cord over an area one to two cm. wide and ran as separate bundles to the dura, while in the dorsal region the bundles soon united to form one nerve root. Therefore, in the cervical region, a tumor could press on a few of the root bundles and give rise to symptoms from those bundles only, so that one should differentiate between root bundle symptoms and root symptoms. He reported several cases in which pressure upon the lower root bundles of the seventh cervical posterior root produced pain limited to the index finger, so that it was probable that the lower root bundles of the seventh cervical nerve supplied the index finger and perhaps part of the middle finger.

Doctor Elsberg then described the peculiar course of the nerve roots. In the dorsal region the roots first ran downward, bending upward again at a very acute angle. Further investigation had shown that the outer surfaces of the dura of the spinal cord was very sensitive, while the cord itself was insensitive, except near the origin of the posterior roots, and the posterior roots themselves were very sensitive. Taking these facts into account, it was easy to understand how a small focus of malignant disease in the posterior and lateral surface of the body of a vertebra could cause very acute root pains. Extradural tumors which did not press upon nerve roots might cause pain in the back from pressure on the inner surface of the dura, especially if

they lay in front of the slip of the dentate ligament.

He had observed a peculiar set of symptoms in several cases of extradural tumor. There was a kind of reverse Brown-Séquard, the motor symptoms being on the opposite side and the sensory symptoms on the same side as the tumor. There was a collection of fluid under the dura on the side of the tumor, which pressed the spinal cord to the opposite side against the walls of the spinal canal, so that the motor symptoms were due to the pressure of the contralateral pyramidal tract against the bony wall of the canal. This could be called *contre-coup*, and was similar to what occurred in the posterior cranial fossa when a cerebellar tumor of one side pushed the cerebellum to the other side and caused the facial nerve of the contralateral side to be pressed against the petrous portion of the temporal bone, with resulting facial paralysis on the side opposite to the lesion. Finally, he reported peculiar anomalies of the spinal vessels which gave rise to irregular symptoms and which had not hitherto been described. These cases, he said, deserved further study.

In order to illustrate the facts of the paper, Doctor Elsberg presented the following cases:

1. A patient who was completely relieved of symptoms of abdominal pain on the right side by the removal of an extradural spinal tumor from the twelfth dorsal segment.

2. A patient from whom a tumor had been removed at the eighth dorsal segment, underneath the slip of the dentate ligament. This tumor had caused paraplegia and severe pain in the back.

3. A patient cured after removal of a tumor from the eighth cervical segment. She had suffered from marked motor symptoms for a long time, but sensory symptoms appeared only after lumbar puncture had been done.

4. A patient who rapidly recovered from a paraplegia of three years' duration after the removal of a small tumor from the sixth cervical segment. This patient at first presented symptoms at the eleventh dorsal, but a laminectomy failed to discover the tumor. A year later, the patient presented level symptoms at the first to the second dorsal, but the tumor was found at the sixth cervical.

5. A patient who had had spastic paraplegia due to a localized pachymeningitis, with tremendous thickening of the dura at the sixth dorsal level who was completely relieved by excision of the thickened dura.

6. A patient completely relieved for a number of years by decompressive laminectomy from symptoms simulating multiple sclerosis.

7. A patient with acromegaly who had had an acute exudate in the sella turcica, causing the rapid development of eye symptoms. When the patient was admitted to the hospital, he had meningeal signs, was blind in the left eye, and had temporal hemianopsia in the right eye. With the subsidence of the hypophysitis or perihypophysitis, the fields of vision in both eyes gradually returned to normal.

The Nature and Pathogenesis of Epilepsy.—Dr. L. PIERCE CLARK's paper on this subject appeared in the JOURNAL, February 27 to March 27, 1915.

Doctor HOCH was much interested in Doctor Clark's paper, a very valuable contribution, not only to the study of epilepsy, but to the subject of analysis of abnormal mental states in general. On account of the lateness of the hour, he desired to confine himself to a few remarks on the general principle of such studies, which often failed to be understood, or, at any rate, did not carry conviction. The most prominent feature which Doctor Clark's study brought out was that in epilepsy, as was the case in the psychoses and neuroses, that which they might call infantile motives played an important role. Such infantile motives were the result of imperfect development of the instincts. Such motives Freud had demonstrated in the neuroses by means of his psychoanalytic method. In psychoses they were very prominent, and, what was more important, quite plain. They expressed themselves often in delusions and hallucinations of the patient, which they did not understand formerly because the patient did not produce them in an adult logical form, and because they had no idea of the fact that a defective instinct development could give rise to such motives. But once this was known, many of the utterances of the insane became strikingly clear, and did not require the complicated, difficult, and, in the hands of the inexperienced, doubtful method of interpretation, because the patients very plainly expressed these infantile desires. The interesting personality studies on epileptics which Doctor Clark made, also gave them an interesting confirmation of the theory that the epileptics presented imperfectly developed instincts. But they must agree that it was difficult to admit that in patients with constitutional disorders there was an all engrossing attachment to the parents into which even sexual elements entered; but the matter became very convincing when they found that this motive returned, with almost tireless frequency, in the delusions and hallucinations of the psychoses. Still more absurd seemed the desire to get back into the mother's body, but when looked at from the point of view of a desire for complete shelter, for that most fundamental renunciation of adaptation to reality, it appeared much more reasonable, and the special formulation which they found in delusions and in dreams, namely, a formulation which often referred to the real womb, was likely to be a secondary mental elaboration. At all events, this motive had to be accepted as a definite fact, no matter how they tried to explain it. This entire method of studying diseases had added much to their knowledge of the symptom analysis, the structure of the clinical factors, and the forces at work. It should, of course, not be held that the forces thus discovered, and the imperfect instinct development, were the final cause of epilepsy. Such studies gave no account of the organic causes of the constitutional defect, or the organic side of abnormal functioning of the instincts.

Dr. JOHN T. MACCURDY had been interested in the problem of epilepsy for some years, and thought that all those who had studied epilepsy with psychoanalytic methods would admit that Doctor Clark's paper marked a most important advance in their knowledge of the subject. They knew from data, pathological, clinical, and hereditary, that epilepsy occupied a lower scale in mental adaptation

than did dementia præcox. In the latter, the essential feature was the attachment of the patient to the parent of the opposite sex. This already implied a certain degree of interest outside the individual, a certain degree of objectivation. If epilepsy represented a lower stage in adaptation, then they should look for the point of fixation in the stage of "mother life," and that Doctor Clark had apparently discovered. He told them that epileptics were intensely egotistical, which pointed to a failure of objectivation; that the conflicts of the world were nothing to them, which was another evidence of egoism; and finally, he had made the very interesting observation that there was a definite desire to return to the mother's body. That was an extraordinary statement; yet they saw it in other psychoses. He recently saw an epileptic who averred that during his convulsion he went back to his mother's womb, which he very much enjoyed.

Dr. SMITH ELY JELLIFFE said that the *Mutterlieb* fantasy was met with in various phenomena in addition to the epilepsies, such as in various conversion and compulsive phenomena. Doctor Clark apparently would apply a general situation present in the psyche of all individuals as explanatory of a specific phenomenon. It would be of practical interest in the analysis of the epileptic phenomena to see just how the individual had evolved the universally present *Œdipus* situation through the individual muscle erotic gratification. It was no solution to say that these patients showed an introversion type in fantasy; everybody did that. The answer should show how did the epileptics work out their fantasy, not in harmonious muscular activity, but in the discordant and non-adaptive epileptic discharge.

Doctor CLARK, in closing, said he had not included the definitely organic cases of epilepsy in his study, and that for the time being he wished to limit his interpretation of the mechanism of epilepsy to that of the so called idiopathic group. He might say, however, that he had seen several cases of epilepsy which followed in the wake of infantile cerebral palsy in which the mechanism of the attack was quite identical with those he had studied in essential epilepsy, as embraced in his paper. He cited the fact that Binswanger, Gowers, and Oppenheim had all indicated that the essential make-up in personality and the enduring mental stigma of the disease were, to all intents and purposes, identical in epilepsy following cerebral palsies, compared with that of idiopathic epilepsy. From this and other data in his hands, he was willing to admit that the possible real genesis of the preepileptic state might be organic at bottom. But where persistent attacks occurred, his contention was that the organic insult merely permitted or allowed the mechanism of epilepsy to occur as he tried to show it to have done in his study.

Annual Meeting, January 5, 1915.

The President, Dr. SMITH ELY JELLIFFE, in the Chair.

Periodic Paralysis.—Dr. C. E. ATWOOD presented the case, he explained, on account of its extreme rarity. Fewer than a hundred cases had thus far been recorded. A careful study of the disease was first made by Westphal in 1885, and later Gold-

flam gave out a full description of it. The textbooks scarcely mentioned the disease. The patient was the tenth in a family whose history was studied for four generations. The cases were all on the maternal side, and all patients were born in Russian Poland. The patient was twenty-one years of age, and the second of three children, all males. One brother and the mother were affected by the same disease. The next nearest relative was a maternal uncle. Most of the other cases were in cousins, once or twice removed. One second cousin choked to death during an attack. He had been left alone and was unable to turn his head in order to throw off some food which had regurgitated. Another second cousin, who was subject to the disease, while serving in the Russian army had a severe attack, and died from burns inflicted on him during it because he was thought to be malingering.

The medical history of the case presented, aside from the attacks of periodic paralysis, was negative. The patient was well built, muscular, with massive quadriceps. There was no associated dystrophy, though this had been found to occur in a few of the cases on record. There were no evidences of local wasting, or local paralysis. All sensations to touch, temperature, pain, and pressure were present. The reflexes were present and normal; the cranial nerves were normal; the fundus oculi was normal; the heart and lungs were normal. There was no spasticity nor flaccidity of muscle. The electric reactions were present. There were no hysterical stigmata. In all respects, physically and mentally, the patient had seemed, therefore, to be on examination between attacks normal. His history, however, showed that he was subject to attacks of motor paralysis at intervals of a few days to a few weeks, lasting from a few hours to two or three days. He had seen the patient and examined him during three of these attacks. The first one which the patient ever had occurred when he was four years of age. It lasted twenty-four hours and was general. The second attack was at the age of twelve years, and lasted twenty-four hours; also general. The third attack occurred at fourteen and was typical and severe, and was followed by milder attacks as often as once a week, or even daily. Since the age of fourteen his severe attacks had occurred, at first, one in two or three weeks; later on, once in two months; and, under treatment since 1911, had recurred at longer intervals, until lately they had increased in frequency. They were more frequent in cold weather. They were sometimes preceded by a heavy feeling in the legs, which then enabled the patient to foretell an attack. Attacks usually came on at night.

The first one witnessed by Dr. Atwood was on November 14, 1911, twelve hours after its inception. It was not very severe, and may have been lessened in severity by magnesium citrate and an enema. The patient was entirely conscious, and no abnormal mental symptoms were noticed. The left side was more affected than the right. There was great flaccidity. The patient felt weak in the ankles, knees, and wrists. He was able to get out of bed with assistance at the time of the visit, but felt weak, dizzy, and faint while in the erect posture, and could not stand unsupported. Sensation to

touch, temperature, pain, and pressure was everywhere preserved. Muscle irritability was diminished on the less affected and absent on the more affected side. The cranial nerves were free. The left knee jerk could not be elicited; the right was barely present. The left plantar reflex was absent; the right normal. A bruit could be distinctly heard over the apex of the heart. This bruit was not present when the patient was examined between attacks. The apex beat was at the sixth intercostal space. The attack lasted twenty hours. The next day on examination both knee jerks were present and there was complete resoration in muscle function and reactions. The mitral bruit had disappeared, but the apex beat remained in the sixth intercostal space. On December 7, 1911, an examination of the patient was made during an attack, fourteen and one half hours after it began. The patient could talk, but was otherwise almost completely paralyzed. He had eaten heartily just before retiring, and had smoked more than usual. Also, the evening before, his legs had seemed weak in walking, and he could not extend the fingers of the left hand. It is possible that these symptoms indicated a slight attack at that time. He went to sleep as usual, however, but awoke at 2 a. m., unable to move the arms and hands and right leg, but could move the left leg and foot slightly. He was able to sleep again, but awoke at 3 a. m. and found that he could move only his head. On examination at 4.30 p. m., recovery had begun. He could move the great toes, and flex the fingers; could slightly roll the head from side to side, and slightly move the left leg and the right forearm. His paralysis was flaccid. The knee jerks were absent; ankle jerks barely present; abdominal and cremasteric reflexes present, but slight. The heart showed a mitral bruit. The breathing was shallower than normal and carried on mostly by the diaphragm. The voice was fairly strong; there was an absence of muscle tone; no responses to direct tapping. Sensibility was unimpaired; the mind was unaffected; the mucous membranes appeared normal; the hands and feet were warm; the patient was able to swallow a glass of milk and retain it. Improvement continued from the periphery upward—the wrists, elbows, shoulders, and ankles improved during a period of about two hours. The condition returned, however, at midnight after the examination, and the patient became again paralyzed, except in the fingers and neck. He vomited at 11 p. m. the milk taken, and voided urine. He was unable to expel two enemata of soapsuds administered during the attack. The following morning he awoke at 6 a. m., entirely free from symptoms. Urinalysis during attack showed increased acidity; increased indican; little albumin; increased sulphate partition. Bacteriological study of the feces showed a marked intestinal infection and a state of fermentative putrefaction, due to a clean cut infection of *Bacillus aerogenes capsulatus*. The same condition was found in the mother and brother in a lesser degree, and was present very slightly in the father, who was not affected.

Dr. L. PIERCE CLARK would like to ask Doctor Atwood if he had found out whether there were times when, after indulging in these various irreg-

ularities of diet, the patients did not have attacks in consequence, and also if experiments had been made at different times with a view to suggesting a suitable diet and finding out just how susceptible the patients were to these changes.

Doctor Atwood replied that he had not been able to handle the case closely enough to do work along such lines; the conditions surrounding the patient could not be controlled to this extent. John Mitchell, Edsall, and Flexner carried out a series of such experiments some years ago, and found diminished creatinin excretion. There had been but few autopsies, and no histological studies after death. Findings based on the urine, feces, and blood were conflicting. There had been no examination of the spinal fluid, as yet, during an attack. Determining causes of individual attacks had been ascribed to muscular exertion, indiscretions in diet, exposure to cold, constipation, nervous and mental fatigue, worry and emotional excitement, etc. There was a consensus, however, as regards the pathogenesis of attacks, that a condition of autointoxication was present. Nearly all the various other theories were untenable. There seemed to be a deficiency of elimination of nitrogenous metabolic products, and the absorption of some toxic substance—perhaps from the gastrointestinal tract, which was capable of acting as a paralyzant to both the endings of the peripheral motor nerves and the muscle fibres themselves.

Dementia præcox.—Dr. WALTER L. TREADWAY, by invitation, dealt with dementia præcox in men, and called attention to the fact that it is no longer to be questioned that in the genesis of dementia præcox the so called shut-in type of personality was essentially the type that broke down with this disorder. The original description of the shut-in type of personality left out, to quite a considerable extent, the abnormalities in the sexual life of these individuals. In the development of sexuality certain types of shut-in personality showed an inability to fuse the tender feelings and the sensual feelings, and to bestow the two together on an adult object. The Oedipus situation played an important part in preventing the biological demands of adult life properly to adapt itself—i. e., an inability to replace the infantile tendencies with an adult object—hence a defective adaptation in love affairs, mating, and propagation; in other words, a defect in the instincts. The first case considered was that of a normal man with externally an excellent adjustment to life, but with evident difficulties in the sexual sphere. He was quite capable of having sexual relations with women, but for them he had no tender feelings. He was also quite unable to have any erotic desire for a woman for whom he had a real feeling of love or reverence. Two women for whom he held this tender feeling were older than he, and with them he drew a plain parallel with his mother, so that both represented mother substitutes. This case was presented with a view to bringing about a better understanding of the cases which followed. The article was not confined to the make-up of dementia præcox cases, but to some points about the precipitating causes, and about the content of the psychosis.

The first case of dementia præcox presented a shut-in personality with the following abnormal traits in his sexual life: Although the purely sensual side of his sexuality seemed not to be repressed, he was decidedly defective in his capacity to make love and to contemplate marriage seriously. Such abnormalities were considered an evidence of an infantile attitude, so far as love and marriage were concerned, and represented an inability to develop beyond the mother attachment. This case showed that the man's ideas which referred to his getting an independent position in life, and the finishing of his apprenticeship, were closely related with the idea of marriage, and owing to his make-up it was precisely that from which he shrank so much. It was then regarded that the taking up of a definite life work, and the final coming into sight of the termination of his apprenticeship, represented the precipitating cause, or the precipitating cause acted in the same direction as that to which the defect of his make-up tended. The content of his psychosis was marked by homosexual features, but there was also another part which represented the wish not to go through the apprenticeship, not to have sexual power, all of which was connected with his ideas of marriage. The trend was an expression of a regressive sexuality; that is, of nonadapted love; namely, in this case homosexuality. So that make-up, precipitating cause, and content were the expression of the same innate tendency or defective adaptation.

(To be continued.)

Letters to the Editors.

BLOOD COUNTS.

BUFFALO, March 30, 1915.

To the Editors:

Referring to Dr. H. J. Hartz's article on blood counts, in your issue for March 27th, allow me to suggest that for carrying diluted blood for counting, a broad rubber band passed longitudinally over the mixing tube, is convenient.

A. L. BENEDICT, M.D.

OPHTHALMOLOGICAL SUPERSTITIONS IN THE KENTUCKY MOUNTAINS.

NEW YORK, April 3, 1915.

To the Editors:

New York physicians may think they have to handle some very ignorant patients in the course of their public service to the city, but how is this appeal from Doctor Wickliffe, of the United States Public Health Service Trachoma Hospital, printed in the *Thousandsticks*, of Hyden, Leslie County, Ky., for the instruction of mountaineer sufferers with trachoma!

"The operation for trachoma (sore eyes) is really very simple and yet I hear reports such as this: 'I am afraid to go have my eyes operated on. If you put me to sleep and take my eyes out and scrape the bumps off they might put the left eye back where the right one belongs and the right where the left ought to be. I would go if it was not for this.' I also hear reports of this sort: 'I'd go get my eyes fixed if it was not for going to sleep. I'm scared to go to sleep.' I do not put grown people to sleep for this operation as a rule. Out of the ninety-five operations done in this hospital to January 1st, I put only three grown people to sleep and they requested me to do it. I am not opposed to putting them to sleep, but I do not think it is necessary in the majority of the cases. In children, as they are not able to stand much, I think it is best to put them to sleep, but I wish to say that these children can

stand a lot. I have had several of them to walk into the operating room and have their eyes fixed under cocaine and they stood it as well as any grown person. The grit shown by them is remarkable and I wish to give them full credit for it.

I wish every one of you to remember, we do not take out the eyes to operate on sore eyes. Once the nerve that goes from the brain to the eye is cut, that eye is forever blind. Please remember that we do not take out your eyes and that it is only the lids that we operate on for sore eyes. We do not operate on the ball of the eye at all. I fail to see how this notion of taking these eyes out ever got started.

What we do is to turn the lids over and scrape off these granules (bumps) that are on the under side of the lids. They may be scraped off in several different ways, but all of them must be removed and the germs that cause them killed. If we do not do this, we may just as well not do any thing at all. We use a germicidal solution on the lids to kill these germs after the bumps are removed. I consider the use of this latter just as important as the operation and this is the reason I wish my cases to stay in the hospital for a few days after the operation."

And this is the twentieth century and after a hundred years of public schools and other aids to civilization and progress!

W. J. L.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Cancer Problem. By WILLIAM SEAMAN BAINBRIDGE, A. M., Sc. D., M. D., Professor of Surgery, New York Polyclinic Medical School and Hospital; Surgeon and Secretary of Committee of Scientific Research, New York Skin and Cancer Hospital; Consulting Surgeon, Manhattan State Hospital, Ward's Island; Honorary President, First International Congress for the Study of Tumors and Cancers, Heidelberg, 1906. New York: The Macmillan Company, 1914. Pp. xix-534.

We are not afraid to repeat of this volume the venerable compliment paid to much less worthy works, that it fills a long felt want. Thousands of sufferers from the protean manifestations of malignant disease and scores of anxious practitioners will welcome this book as affording a complete summary of our present knowledge of cancer, and while its contents will not always console the victims of advanced or metastatic growths, still it holds out hope for all who are in the incipient stages and is a positive benediction for those who suffer merely from fear of the disease. The indications for a book of the kind may be perfectly plain, yet it seems that only the exceptional man perceives them; he undertakes the task, and on its completion others must content themselves with wondering "why none thought of the idea before."

Despite the fact that we do not know what cancer is, whether it is purely a local growth with subsequent constitutional invasion, or primarily a systemic infection with a local manifestation—although this theory is losing support—Doctor Bainbridge has turned out on the subject over 500 intensely interesting pages. Beginning with a summary of our slight knowledge of the ancient history of cancer, the author takes up tumors in vegetable life and in the lower animals, and statistics. Section iv follows on etiology, then histopathology, then an all important section on cancer research, which, despite the negative results, covers thirty-three pages. The clinical course and diagnosis are next discussed, then prophylaxis, while section ix is of importance mainly to the laity in its exposure of the various quack cures. Section x is devoted to nonsurgical treatment, including caustics, heat, light, radioactivity, electricity, fulguration, thermopenetration, ionic surgery, etc. Surgical treatment, the sure cure when practised early, occupies section xi. Irremovable cancers, really and only apparently so, take up a section, and the author goes on to the institutions devoted to the care of cancer patients, both public and private, ethical and quack. The book is illustrated with thirty-eight full page plates, mostly showing the histopathology of the various kinds of malignant growth;

they are beautiful, both in execution and reproduction. There are also fourteen illustrations in the text.

Section xiv, on the campaign of education, is of sufficient importance to warrant its separate publication in pamphlet form for free distribution. Education as to cancer, as Doctor Bainbridge points out, is not an enterprise for the layman nor for the insufficiently instructed physician. Such a campaign would resemble but slightly the crusade against tuberculosis, the cause of which is known as well as the best method of fighting it. The profession itself needs instruction regarding cancer; numerous unfortunate mistakes in diagnosis are cited in Doctor Bainbridge's work. On page 451 the author finally gives his own idea as to how an educational campaign should be conducted.

We cordially commend this admirable book to its double clientele of physicians and patients. Not the least of its merits are the clarity and readability of the text.

Praktikum der Chirurgie. Ein Leitfaden für Ärzte und Studierende. Von Dr. O. NORDMANN, Oberarzt der II. chirurgischen Abteilung des Auguste Viktoria-Krankenhauses Berlin-Schöneberg. I. Teil. Allgemeine Chirurgie. Mit 90 teils farbigen Abbildungen. Berlin und Wien: Urban & Schwarzenberg, 1915. Pp. xii-216.

This short work on surgery is not a comprehensive treatise of the subject and is not scientific in the strict sense, in its presentation. The author has had in mind to give the reader certain facts in the symptomatology and treatment of common surgical conditions which will enable him to recognize and treat successfully these conditions when presented in actual practice. In other words, it is an attempt to provide the practical man not expert in surgery, with certain points which an expert has found of great practical value during his wide experience in surgical work in the wards and operating rooms of a large city hospital. From this point of view the author has done a welcome service, and the book will be of great use as a practical guide from which all unnecessary detail has been excluded. The few illustrations are very much to the point and are unusually well done. The present volume deals with general surgery and will be supplemented by another treating of special regions. The two should make a worthy addition to our literature of practical surgery.

Surgical Materials and Their Uses. By ALEXANDER MACLENNAN, M. B., C. M. (Glas.), Visiting Surgeon, Glasgow Royal Hospital for Sick Children; Assistant Surgeon, Western Infirmary, Glasgow; Consulting Surgeon in Glasgow, East Coast Railways; etc. With 277 Diagrams and Illustrations. New York: Longmans, Green & Co.; London: Edward Arnold, 1915. Pp. viii-252. (Price, \$1.25.)

This short treatise is intended for students of surgery and represents the materials used in lectures and demonstrations. To the American a good deal of what is now obsolete seems to have been included, and the illustrations appear very crude. Furthermore, space is devoted to an unnecessary description of instruments the use of which seems perfectly obvious even to the uninitiated. The only value of the book lies in its description of the technic of bandaging, which unfortunately tends to become a lost art among our students. Anything that can stimulate an interest in skillful bandaging is to be welcomed, not only for the comfort of the patient, but for the reputation of the young surgeon, who too often loses a patient's confidence through an ill applied bandage. These chapters are excellent, and the author should have been content with this limited but important branch of surgery.

International Clinic Week at the New York Polyclinic Medical School and Hospital During the International Surgical Congress, April, 1914. By ALFRED C. JORDAN, M. D.; EUGENE HERTOGHE, M. D.; BENJAMIN MERRILL RICKETTS, M. D.; JOHN A. WYETH, M. D.; JOHN A. BODINE, M. D.; ALEXANDER LYLE, M. D.; WILLIAM SEAMAN BAINBRIDGE, M. D. New York, 1914. Pp. 103.

This little volume contains three interesting papers and the abstracts of four clinical lectures which have been reprinted from the *Medical Record*. The first of the papers is by Alfred C. Jordan, of London, and deals interestingly and comprehensively with the subject of chronic intestinal stasis and Röntgen photography of the intestinal tract. Not only is the value of the x ray as an aid to diagnosis of

these conditions well shown, but by its use the author has been able to prove the efficacy of Lane's complete short circuit operation in severe cases of chronic intestinal stasis. E. Hertoghe, of Antwerp, devotes much space to a profusely illustrated contribution on thyroid deficiency, dealing with both cretinism and myxedema from the points of view of diagnosis and treatment. The great value of thyroïdine in the treatment of these patients is clearly shown by the results reported, and it is emphasized that the treatment should be so adjusted as to cause the absorption of not more than three and one half to five ounces of the infiltrate from the tissues each day. If more rapid absorption is brought about, the patient will suffer with painful phenomena analogous to those experienced during the course of the deposit of the infiltrate. The last of the three papers deals with intratracheal insufflation, and is contributed by Benjamin M. Ricketts, of Cincinnati. In all, the volume, though sharply limited in the field it covers, is full of interest for the surgeon or physician whose medical interests are sufficiently broad to permit him to delve into some of the special phases of our science. As the papers have been published before, this pamphlet has the sole advantage to the reader of bringing them together in a more convenient form than the large page of a medical journal.

Interclinical Notes.

A sort of epidemic of gray hair has broken out in Europe and in this hemisphere as well. We hope no deeply scientific physician has thought out any elaborate theory about nerve shock, altered diet, psychic disturbance, etc., to account for it; for the truth seems to be that this catastrophic canities is due simply to the failure of the anilin dye industry. So we learn from *Nature* through *Current Opinion*.

* * *

In Her Wedding Day, by Mildred Van Inwegen, in *Young's Magazine* for April, a famous surgeon walks out of doors and out of the story in the very first sentence. We were much disappointed not to learn more of this scientific gentleman because it is on his achievements that the whole plot depends. As the hero recovers from a spinal injury which had led to paraplegia, we are sure that our readers will join in our wish to hear of this surgeon again.

* * *

Of the beautiful illustrations in the *April Century*, not the least beautiful are the views of the Panama-Pacific Exposition, reproduced by some process which seems to eliminate the tiny dots of the halftone pictures. It is good, too, to see wood engravings once more, as in Timothy Cole's frontispiece. The French atmosphere in Zizi's Hat, by Joseph Ernest, is admirable, and so it is, in another sense, in the Death of Louis XVI, one of the high lights of the French Revolution, by Hilaire Belloc.

* * *

The poor but brilliant young physician, Dr. Clinton Worthing, continues his good work in *Empty Pockets* in the *April Red Book*. We are pained to announce that Rupert Hughes, the author of this excellent story, is not himself a physician. We were certainly under the impression that we had been credibly informed that he was a graduate in medicine, but we may have been led to that conclusion simply on account of the universal and quite uncommon accuracy in his medical allusions. Recently we have received the most positive information that it is Mr. Hughes only. We decline to season our admiration, however, for his skill and ingenuity in writing.

Meetings of Local Medical Societies.

MONDAY, April 12th.—New York Ophthalmological Society; Society of Medical Jurisprudence, New York; Roswell Park Medical Club, Buffalo; Association of Alumni of St. Mary's Hospital, Brooklyn (annual); Williamsburg Medical Society, Brooklyn; New Rochelle, N. Y., Medical Society.

TUESDAY, April 13th.—New York Academy of Medicine (Section in Neurology and Psychiatry); Federation of Medical Economic Leagues of New York; Medical Society of the County of Wyoming; Ontario County Medical Society; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); New York Obstetrical Society; Medical Society of the County of Oneida.

WEDNESDAY, April 14th.—New York Pathological Society; New York Surgical Society (annual); Alumni Association of Norwegian Hospital, Brooklyn; Schenectady Academy of Medicine; Medical Society of the Borough of the Bronx; Richmond County Medical Society; Dunkirk and Fredonia Medical Society; Rochester Academy of Medicine; Medical Society of the County of Montgomery; Medical Society of the County of Dutchess.

THURSDAY, April 15th.—New York Academy of Medicine (stated meeting); Auburn City Medical Society; Geneva Medical Society; German Medical Society, Brooklyn; Esculapian Club of Buffalo; New York Celtic Medical Society.

FRIDAY, April 16th.—New York Academy of Medicine (Section in Orthopedic Surgery); Mount Vernon Medical Society; Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending March 31, 1915:

Anderson, John F., Surgeon. Granted two days' leave of absence, March 29 and 30, 1915, under paragraph 193, Service Regulations. **Bahrenburg, L. P. H.**, Surgeon. Directed, at the request of the South Texas Medical Society, to represent the service at the meeting of that association, to be held at Victoria, Texas, April 8 and 9, 1915. **Banks, C. E.**, Senior Surgeon. Directed, upon the request of the commissioner, Bureau of Lighthouses, to proceed to Sturgeon Bay, Wis., for the administration of antityphoid vaccine to officers and men of the Lighthouse Service in that district. **Brooks, J. E.**, Acting Assistant Surgeon. Directed to proceed to Boston, Mass., for observation and instruction in the medical examination of arriving aliens. **Bryan, W. M.**, Passed Assistant Surgeon. Upon completion of present course, relieved from duty at the Hygienic Laboratory, and directed to proceed to Fort Morgan, Alabama, and assume charge of the Mobile Quarantine Station. **Cody, H. C.**, Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and directed to proceed to St. Louis, Mo., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Cofer, L. E.**, Assistant Surgeon. Directed, on request of the State Commissioner of Health, to proceed, by way of Indianapolis to Richmond, Ind., on or about April 9th, to make a sanitary survey in the latter city with a view to advising in respect to the better control of infectious diseases. **Cumming, H. S.**, Surgeon. Directed to extend the investigations of the pollution of tidal waters to the waters of the States of New Jersey, Delaware, and New York. **Goldberger, J.**, Surgeon. Granted fourteen days' leave of absence from March 25, 1915. **Hommon, H. B.**, Sanitary Chemist. Directed to proceed to Noblesville, Ind., on or about April 5, 1915, for the purpose of supervising the experimental work on strawboard waste now being conducted at that place, and to outline certain new investigations. **Laughlin, J. B.**, Assistant Surgeon. Granted eighteen days' leave of absence upon completion of course of instruction at the Hygienic Laboratory. **McKay, W. W.**, Acting Assistant Surgeon. Granted three days' leave of absence from April 17, 1915. **Paine, Liston**, Assistant Surgeon. Relieved from duty at the Marine Hospital, St. Louis, Mo., and directed to proceed to Victor, Mont., and Boise, Idaho, for duty in measures for the prevention of the interstate spread of Rocky Mountain Spotted Fever.

Rucker, W. C., Assistant Surgeon. Directed, upon the request of the Secretary of the Navy, to make a sanitary inspection of the buildings and grounds at the Naval Academy at Annapolis, Md. **Schwartz, Louis**, Assistant Surgeon. Directed to proceed to Philadelphia and report to Senior Surgeon Fairfax Irwin for duty. **Trask, J. W.**, Assistant Surgeon General. Directed, at the request of the Tennessee State Medical Association, to represent the service at the meeting to be held in Nashville, Tenn., April 13-15, 1915. **Waller, C. E.**, Assistant Surgeon. Granted seventeen days' leave of absence from March 29, 1915. **Yarbrough, H. C.**, Assistant Surgeon. Granted fourteen days' leave of absence from April 2, 1915.

Promotion.

Surgeon Joseph H. White commissioned and promoted to the grade of senior surgeon in the United States Public Health Service.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending April 3, 1915:

Bingham, E. C., Captain, Medical Corps. Granted one month's leave of absence. **Castlen, Charles R.**, First Lieutenant, Medical Corps. Ordered to report in person to the commanding officer, Fort Worden, Washington, for temporary duty, and will then proceed to Fort Bayard, New Mexico, for duty. **Culler, Robert M.**, Captain, Medical Corps. After arrival in the United States, and upon the expiration of such leave of absence as has been or may be granted him, will proceed to Fort Robinson, Nebraska, and report in person to the commanding officer of that post for temporary duty. **D'Alemberte, Clinton W.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States, and will report in person to the commanding officer, Fort Barrancas, Florida, for duty for a period of one day. **Gilchrist, Harry L.**, Major, Medical Corps. Relieved from duty in the Division of Militia Affairs to take effect September 1, 1915, and will then proceed to Fort Grant, Canal Zone, take station, and report to the commanding general of the United States Troops for duty with the Coast Defense Unit in the Canal Zone. **Haverkamp, Charles W.**, Captain, Medical Corps. Ordered to proceed to West Point, N. Y., and report in person to the superintendent of the United States Military Academy, for temporary duty, and upon completion of such duty to return to his proper station. **Hess, Lewis T.**, Major, Medical Corps. Relieved from present duties, to take effect at such time as will enable him to comply with the order, and will repair to this city at the proper time and report in person on August 20, 1915, to the chief of the Division of Militia Affairs, for duty. **Ireland, Merritte W.**, Lieutenant Colonel, Medical Corps. Relieved from duty in the Philippine Department, to take effect on or about July 15, 1915, and will then proceed to the United States, and upon arrival report by telegraph to the adjutant general of the army for further orders. **McGown, T. B.**, First Lieutenant, Medical Reserve Corps. Granted three months' leave of absence. **Maynard, Edwin B.**, First Lieutenant, Medical Reserve Corps. After arrival in the United States, and upon the expiration of such leave of absence as has been or may be granted him, will proceed to Fort Benjamin Harrison, Indiana, and report for duty at that post. **Moore, Harvard C.**, First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States, and will proceed to Vancouver Barracks, Washington, for duty. **Schlanser, Adam N.**, Captain, Medical Corps. Relieved from duty in the Hawaiian Department, to take effect at such time as will enable him to comply with this order, and upon arrival at Honolulu, Hawaii, of the transport to sail from Manila, P. I., on or about June 15, 1915, will proceed on that transport to San Francisco, Cal., and report for general orders on his arrival in the United States. **Stuckey, Harrison W.**, First Lieutenant, Medical Reserve Corps. After arrival in the United States, and upon the expiration of such leave of absence as has been or may be granted him, will proceed to Fort Rosecrans, California, and report for duty at that post. **VanKirk, H. H.**, Lieutenant, Medical Corps. Ordered to take station at Cavalry Camp, San Diego, Cal.

Births, Marriages, and Deaths.

Married.

Coe—Waggoner.—In Los Angeles, Cal., on Thursday, March 25th, Dr. Henry Waldo Coe, of Portland, Oregon, and Miss Elsie Ara Waggoner. **Jablons—Jakobi.**—In Paris, France, on Tuesday, March 9th, Dr. Benjamin Jablons, of New York, and Miss Audrey Frances Jakobi, of New York. **Loomis—Windsor.**—In Wichita, Kansas, on Thursday, March 18th, Dr. Western C. Loomis and Miss Myrtle Lillian Windsor. **Rutter—Thomas.**—In Schuylkill Haven, Pa., on Thursday, March 25th, Dr. Thomas C. Rutter and Miss Ruth Thomas.

Died.

Alvord.—In Tampa, Fla., on Wednesday, March 24th, Dr. Austin White Alvord, of Battle Creek, Mich., aged seventy-seven years. **Bell.**—In Ottawa, Canada, on Monday, March 22d, Dr. William R. Bell, aged eighty-two years. **Bleyer.**—In New York, on Saturday, April 3d, Dr. Julius Mount Bleyer, aged fifty-six years. **Buchen.**—In Hanover, Pa., on Wednesday, March 24th, Dr. Albert Z. Buchen, aged sixty years. **Cauthen.**—In Charlotte, N. C., on Wednesday, March 24th, Dr. Robert S. Cauthen, aged forty-three years. **Crocker.**—In Narrowsburg, N. Y., on Friday, March 26th, Dr. Edwin Crocker, aged seventy-five years. **Dollard.**—In Neenah, Wis., on Friday, March 26th, Dr. Edwin C. Dollard, aged forty-two years. **Dreaver.**—In Annapolis, Md., on Wednesday, March 24th, Dr. Arthur Dreaver, aged eighty-two years. **Eisenbeiss.**—In Indianapolis, Ind., on Monday, March 29th, Dr. Erastus M. Eisenbeiss, aged fifty-two years. **Farr.**—In Belton, Texas, on Tuesday, March 16th, Dr. R. S. Farr, aged seventy-six years. **Gillespie.**—In Indianapolis, Ind., on Wednesday, March 24th, Dr. W. B. Gillespie, aged seventy-nine years. **Hair.**—In Mobile, Ala., on Saturday, March 20th, Dr. Judson E. Hair, Jr., of Greenville, S. C., aged twenty-six years. **Hannaford.**—In Mount Vernon, Washington, D. C., on Saturday, March 13th, Dr. Joseph N. Hannaford, aged seventy-nine years. **Herrick.**—In Sharpes, Fla., on Tuesday, March 23d, Dr. Clinton B. Herrick, aged fifty-six years. **Honberger.**—In Chicago, Ill., on Tuesday, March 30th, Dr. Frank H. Honberger. **Howard.**—In Portland, Ore., on Thursday, March 18th, Dr. Erwin P. Howard, aged sixty-two years. **Huss.**—In Denver, Colo., on Friday, March 19th, Dr. John R. Huss, of Eureka, Kansas, aged fifty-four years. **Knight.**—In Fountain Inn, S. C., on Thursday, March 18th, Dr. S. S. Knight, aged seventy-seven years. **Koonce.**—In Washington, D. C., on Wednesday, March 24th, Dr. Francis D. Koonce, aged forty-six years. **Lamaster.**—In Ashland, Mo., on Wednesday, March 24th, Dr. Walter Lamaster, aged sixty years. **Lenhart.**—In Bemus Point, N. Y., on Friday, March 26th, Dr. John Jordan Lenhart, aged seventy years. **McClellan.**—In Canandaigua, N. Y., on Friday, March 26th, Dr. Frederick E. McClellan. **McGourty.**—In New York, on Sunday, March 28th, Dr. James E. McGourty, of Worcester, Mass. **McLellan.**—In Montreal, Canada, on Saturday, March 20th, Dr. Angus A. McLellan, of Summerside, P. E. Islands, aged fifty-five years. **Munn.**—In Waterbury, Conn., on Sunday, March 21st, Dr. Stephen B. Munn, aged eighty-eight years. **Randle.**—In Philadelphia, on Friday, April 2d, Dr. William H. Randle, aged sixty-four years. **Rink.**—In Denver, Col., on Friday, March 19th, Dr. J. Aldo Rink, aged forty-one years. **Robinson.**—In Beaverton, Ore., on Monday, March 22d, Dr. Francis M. Robinson, aged sixty-seven years. **Siemens.**—In St. Joseph, Mo., on Monday, March 22d, Dr. Claus J. Siemens, aged eighty-six years. **Smith.**—In Hartford, Conn., on Saturday, March 27th, Dr. Oliver C. Smith, aged fifty-six years. **Stover.**—In Baltimore, Md., on Thursday, March 25th, Dr. George H. Stover, of Denver, Colo., aged forty-four years. **Straub.**—In Minneapolis, Minn., on Tuesday, March 23d, Dr. Charles O. Straub, aged forty-two years. **Swale.**—In Mason City, Iowa, on Sunday, March 21st, Dr. Clarence M. Swale, aged forty-two years. **Turner.**—In Binghamton, N. Y., on Friday, March 19th, Dr. Thomas S. Turner, aged seventy-seven years. **Wood.**—In Jamaica, L. I., N. Y., on Saturday, March 27th, Dr. Philip M. Wood, aged sixty years.

New York Medical Journal

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WHOLE No. 1898.

Original Communications.

THE PSYCHOPATHOLOGY OF NEUROSIS.

BY BORIS SIDIS, M. A., PH. D., M. D.,
Portsmouth, N. H.,

Medical Director, Sidis Psychotherapeutic Institute.

The profound influence of the central nervous system, more especially of the cortex with its mental processes, on bodily activities, on glandular, circulatory, and visceral functions is now firmly established by psychophysiological and psychopathological research work. As Darwin puts it: "The manner in which the secretions of the alimentary canal and of certain glands, as the liver, kidneys, or mammae are affected by strong emotions, is an excellent instance of the direct action of the sensorium on these organs." The heart is extremely sensitive to sensory and ideosensory stimulations. Claude Bernard has shown how the least excitement of sensory nerves reacts through the pneumogastric nerve on the heart. The vasomotor system is directly acted on by the sensorium.

Early investigators (Bidder, Schmidt, Richet) observed the fact that the sight of food causes the secretion of gastric juice. Pavloff in his experiments has shown that the central nervous system acts on the secretions of the stomach through the vagi nerves that innervate its glandular activity. Pavloff made a gastric fistula in the dog, then exposed the esophagus, opened it, and sewed the cut end to the edges of the wound. Food taken by the mouth fell out through the opening, but an abundant secretion of gastric juice was observed. There are two moments in the process of secretion: 1. The psychic moment, the perception of food and, 2, the chemical moment. According to Pavloff, the psychic moment is the more important.

By the term "unconditional reflex" Pavloff means to indicate the response which the animal with a fistula in the secretory glands reacts by secretion to a normal stimulus, such as bread, meat, and other food. By "conditonal reflex" Pavloff indicates the reaction made by the operated animal to a stimulus artificially associated with the unconditional reflex. Thus during the time the animal is fed, a light is flashed or a whistle is sounded or various figures are shown to the animal, as Doctor Orbeli has done. After a series of repetition, twenty, thirty, or a hundred, the animal reacts with secretion to that artificially associated stimulus. When another stimulus is in its turn associated with that of the conditional reflex, the result is not an increase, but a total inhibition of the conditional reflex.

Savadsky modified the conclusions of the previous investigators, but he affirms the fact that an intense stimulus completely annihilates the secretion of the conditional reflex such as is due to scratch stimulus, for instance, while a weak stimulus produces a lesser effect. He finds that the external stimulus inhibits the condition of the nerve centres. In summarizing the work of previous investigators in Pavloff's laboratory, Orbeli says: "Vasiliev and Mishtovt have shown that any phenomenon indifferent in itself may not only become a source of a new conditional reflex, but may become a special inhibitory agent in relation to the existing conditional reflexes. This quality of the nervous system to work out special cases of inhibition makes the conditional reflexes a delicate index of reactions of the organism to its external environment."

On the strength of experiments performed on the visual reactions of the dog, Orbeli comes to the same conclusion with Vasiliev, Mishovt, Babkin, and Savadski. Similarly in the experiments carried on in my laboratory on the galvanic reflex, I find that the results coincide with Pavloff's experiments on inhibition. In a letter to me Pavloff writes that he is at work on the higher activities of the brain of the dog, studying mental reactions by the methods of conditional reflexes. According to Pavloff, mental life, however, complex, can be studied successfully by the reactions of glandular secretions.

An intimate relation exists between the functions of the central nervous system on the one hand and the sensory, motor, glandular, and visceral functions on the other. This vital relation, though unobtrusive to the casual observer, stands out clear and distinct in the domain of certain nervous and mental disturbances, such as hysteria, hysterolepilepsy, larval epilepsy, neurasthenia, psychasthenia. All such conditions are mental disturbances, conscious or subconscious, and are termed by me *psychopathies* or recurrent mental states. Recurrence of the symptom complex is pathognomonic of psychopathies, or briefly, of neurosis. This essential trait of recurrence, found in neurosis, is a reversion to a low type of mental life. I refer all those who are interested in the subject to my work on the moment consciousness studied from a psychobiological standpoint, in my recent volume, *Foundations of Normal and Abnormal Psychology*.

In psychopathic affections the disturbance consists in the formation of nonadaptive associations of central neuron-systems with receptors which normally do not have as their terminal response the particular motor and glandular reactions.

In Pavloff's experiments the flow of saliva or of gastric juice in the dog with the fistula could be brought about by association with blue light, with the sound of a whistle, by a tickle, a scratch, or by various diagrams, squares, circles, as in the experiments of Orbeli. What holds true in the case of conditional reflexes in regard to saliva and gastric juice, also holds true of other conditional reflexes formed by psychopathics. The mechanism in psychopathies is the same which Pavloff and his disciples employ in the formation of various conditional reflexes in the case of the dogs. All kinds of abnormal reactions of a morbid character may thus be formed in response to ordinary stimuli of life.

Emotions are specially subject to associations of a morbid or psychopathological character. The physiological effects of emotions may be linked by associative processes with ideas, percepts, and sensations which are ordinarily either indifferent or give rise to reactions and physiological effects of a type opposite to that of the normal. Milk may excite nausea, a rose induce disgust, red paint produce fainting, while the croak of a crow, Limburger cheese, overripened game, the smell of garlic and asafoetida may be enjoyed with delight.

The reactions of muscle and gland are like so many electric bells which by various connections and combinations may be made to ring from any sensory button or receptor, as Sherrington would put it. An object, however harmless, may become associated with reactions of anguish and distress. This holds true, not only of man, but also of the life of the lower animals.

Associations and reactions, motor, circulatory, glandular, however abnormal, formed by young animals, persist through life. This holds specially true in the case of the higher and more sensitive animal organisms, such as the mammals. All training and the formation of peculiar reactions, such as various tricks, habits, scare habits, scare-pain reflexes depend entirely on this plasticity of the nervous system to form new associations or as Pavloff and his school put it, to form *conditional reflexes* and *inhibitions* in regard to glandular secretions as well as to other psychophysiological reactions.

Psychopathies are essentially pathological affections of associative life. Psychopathic maladies are the formation of abnormal, morbid "conditional reflexes" and of *inhibitions* of reactions of associative normal life activity.

The psychopathies may be classified into: Somatopsychoses and psychoneuroses.

The psychopathies may present chiefly somatic symptoms, such as paralysis, contractures, convulsions, or anesthesia, hypesthesia, hyperesthesia of the various organs, glands, and tissues. Such mental diseases may be termed *somatic psychoses*, *somatopsychoses*. The somatic psychoses or neuroses would comprise the various manifestations of what is at present described as hysteria and neurasthenia as well as the milder forms of hypochondriasis. In all such diseases the *psychical symptoms form the prominent elements of the mental malady*. The patient remains unaware of the underlying mental grounds. So much is this the case that the patient is offended, if his trouble is regarded as

purely mental in character. The mental side of the diseases is then said to be submerged subconsciously.

In the *psychoneuroses* or *neuropsychoses* the physical symptoms are, on the contrary, few or none at all, while the predominating symptoms are entirely of a *mental* character. The patient ignores his physical condition, even if any exists, and his whole mind is occupied with mental troubles. Such conditions are to be found in all obsessions, fixed ideas, imperative impulses, and other allied morbid mental states. Thus one patient is in agony over the unrighteousness of his conduct, another is obsessed by a terror of some mysterious agency, or by religious and moral scruples.

The two clinical forms of psychopathies are in strong contrast. In the somatic psychopathies or somatopsychoses, the patient brings before the physician physical symptoms—stomach derangements, intestinal pains, contractures of limbs, menstrual disturbances, affections of the sexual organs and functions, paresis, paralysis, anesthesia, headaches, and similar bodily troubles. It is for the physician to discover the underlying mental states. In the mental forms, the psychoneuroses, the patient omits reference to his physical condition. He usually states that he has always been physically well, and some patients assert that they are sure that they will *always* be physically well, that the whole trouble is purely *mental*. "I have no physical trouble," he tells the physician, "all my troubles are mental. If you could cure me of my mental suffering, I should be perfectly happy."

The psychosomatic patient lays stress on his physical symptoms and is offended when they are declared to be mental; the psychoneurotic, on the contrary, insists on his mental symptoms, and becomes impatient when the physician pays attention to physical symptoms or to bodily functions. The psychosomatic patient believes he is afflicted with some awful, incurable, physical malady, such as cardiac trouble, tuberculosis, or some other fatal bodily disease. The psychoneurotic, on the contrary, ignores all physical troubles, but he thinks he is on the verge of insanity. The psychosomatic seeks to be assured that he is not an incurable invalid. The psychoneurotic wants to be certain that he is not crazy. The psychosomatic wishes to know whether or no he is really and truly free from some malignant diseases, some horrible infection, or some fatal physical malady. The psychoneurotic is anxious to be convinced that he is not insane, and that he is not to end the rest of the days of his life in some retreat or asylum for the insane. *The clinical difference between the somatopsychoses and neuropsychoses is a fundamental one, and is of the utmost consequence in prognosis and treatment.*

The main source of psychopathic diseases is the fundamental instinct of fear with its manifestations the feeling of anxiety, anguish, and worry. Fear is one of the most primitive instincts of animal life. "Fear," says Darwin, "is the most depressing of all the emotions, and it soon induces utter, helpless prostration." Our life is so well guarded by the protective agencies of civilization that we hardly realize the extent, depth, and overwhelming effect of the fear instinct. Fear is rooted deep down in

the very organization of animal existence; it takes its root in the very essence of life,—the instinct of self preservation. *Primus in orbe Deus fecit timor.*

"The progress from brute to man," says James, "is characterized by nothing so much as the decrease in frequency of the proper occasion for fear. In civilized life in particular it has at last become possible for large numbers of people to pass from the cradle to the grave without ever having had a pang of genuine fear. Many of us need an attack of mental disease to teach us the meaning of the word. Hence the possibility of so much blindly optimistic philosophy and religion. Fear is a genuine instinct, and one of the earliest shown by the human child."

The fear of coming evil, especially if it is unknown and mysterious, gives rise to the feeling of anxiety. "If we expect to suffer," says Darwin, "we are anxious." Similarly, James regards anxiety, especially the precordial anxiety, as morbid fear. "The anxious condition of mind," says Bain, "is a sort of diffused terror." Fear often expresses itself through cardiac and circulatory affections, giving rise to the feeling of anxiety. *Anxiety is nothing else but the working of the instinct of fear.*

In most men the instinct of fear is controlled, regulated, and inhibited from very childhood by education and by the whole organization of civilized social life. There are cases, however, when the instinct of fear is not moderated by education and civilization, when the instinct of fear is aroused by some particular incidents or by particular objects and states. In such cases, fear becomes associated with definite situations, giving rise to morbid fear and anxiety, resulting in the mental diseases known as psychopathies or recurrent mental states, psychoneuroses, and somatopsychoses.

In all such cases we can find the cultivation of the instinct of fear in early childhood. Superstitions, and especially the early cultivation of religion, with its "fear of the Lord" and of unknown mysterious agencies, are especially potent in the development of the instinct of fear. Even the early cultivation of morality and conscientiousness, with their fears of right and wrong, often cause psychoneurotic states in later life. Religious, social, and moral taboos and superstitions associated with apprehension of threatening impending evil, based on the fear instinct, form the germs of psychopathic affections.

What we find on examination of the psychogenesis of psychopathic cases, is the presence of the fear instinct which becomes associated with some interest of life. The interest may be physical in regard to bodily functions, or the interest may be sexual, social; it may be one of ambition in life, or it may be of a general character, referring to the loss of personality, or even to the loss of mind. The fear instinct may become by cultivation highly specialized and associated with indifferent objects, giving rise to the various phobias, such as astrophobia, agoraphobia, claustrophobia, erythrophobia, aichmophobia, and other phobias, according to the objects with which the fear instinct becomes associated. Objects, otherwise indifferent and even pleasant, may by association arouse the fear instinct and give rise to morbid states, like the "conditional reflexes" in Pavloff's animals.

The fear of the unknown, of the unfamiliar, of the mysterious is quite common with children, with savages, and barbaric tribes. The fear of coming unknown unfamiliar evil is specially a source of anxiety to the young or untrained uncultivated minds.

All taboos of primitive societies, of savages, of barbarians, and also of civilized people take their origin, according to recent anthropological researches, in the "perils of the soul," or in the fear of impending evil. As the great anthropologist Frazer puts it: "Men are undoubtedly more influenced by what they fear than by what they love."

Animals in which the fear instinct can be aroused to a high degree become paralyzed and perish. Under such conditions the fear instinct not only ceases to be of protective value, but is the very one that brings about the destruction of the animal obsessed by it. "One of the most terrible effects of fear," says Mosso, "is the paralysis which allows neither of escape nor of defense." The fear instinct is no doubt one of the most vital of animal instincts, but when it rises to a high degree of intensity, or when it is associated with familiar and useful objects instead of strange and harmless objects, then we may agree with the great physiologist, Haller, that the phenomena of fear are not aimed at the preservation, but at the destruction of the animal, or as Darwin puts it, are of "disservice to the animal." This is just the condition found in psychopathic diseases. The fear instinct becomes aroused in early life and cultivated by training, education, and environment, becoming associated in later life with particular events, objects, and special states.

When the instinct of fear is aroused in connection with some future impending misfortune, the feelings of expectation with all its psychological changes, muscular, respiratory, cardiac, epigastric, and intestinal, go to form that complex state of anxiety and anguish, so highly characteristic of acute varieties of psychopathic disease. When fear reaches its acme, the heart is specially affected, the circulatory and respiratory changes become prominent, and give rise to oppression and depression which weigh like an incubus on the patient—the feeling known as "precordial anxiety."

The fear instinct is the ultimate cause of the infinite varieties of psychopathic diseases.

Professor Stanley Hall accepts this view of the subject. In his recent paper on *Fear*, he writes: "If there be a vital principle, fear must be one of its close allies as one of the chief springs of the mind. . . ." In spite of his former "psychanalytic" inclinations, Professor Hall now asserts that "Freud is wrong in interpreting this most generic form of fear as rooted in sex. . . . Sex anxieties are themselves rooted in the larger fundamental impulse of preservation of life with its concomitant instinct of fear." This is the etiology on which I laid stress in my papers and works on the subject of psychopathic diseases. So deeply convinced is Professor Stanley Hall of the primitive and fundamental character of the fear instinct, that he refers to the facts that "if the cerebrum is removed, animals, as Goltz and Bechterev have proved, manifest very intense symptoms of fear, and so do human

monsters born without brains, or hemicephalic children, as Sternberg and Lotzko have demonstrated."

Oppenheim, Kirchoff, Kraepelin, and recently other psychologists and neurologists of note all concur that fear is a fundamental factor in the pathology of neurosis. As physicians, we must remember the importance of fear in cases of surgical shock.

So potent, all embracing, and all pervading is the fear instinct, that the physician must reckon with it in his private office, in the hospital, and in the surgical operating room. In a number of my cases psychognosis clearly reveals the fact that even where the neurosis has not originated in a surgical trauma, surgical operations reinforced, developed, and fixed psychopathic conditions.

The fear instinct arises from the impulse of self preservation without which animal life cannot exist. The fear instinct is one of the most primitive and most fundamental of all instincts. Neither hunger, nor sex, nor maternal instinct nor social instinct can compare with the potency of the fear instinct, rooted as it is in self preservation—the condition of life primordial. When the instinct of fear is at its height, it sweeps before it all other instincts. Nothing can withstand a panic. Functional psychosis in its full development is essentially a panic. A psychogenetic examination of every case of functional psychosis brings one invariably to the fundamental fear instinct. Fear is the guardian instinct of life. The intensity of the struggle for existence, the preservation of life of the animal, is expressed in the instinct of fear. The fear instinct in its mild form, when connected with what is strange and unfamiliar, or with what is really dangerous to the animal, is of the utmost consequence to life.

What is strange and unfamiliar may be a menace to life, and it is a protection, if under such conditions the fear instinct is aroused. It is again of the utmost importance in weak animals, to have the fear instinct easily aroused by the slightest strange stimulus; the animal is defenseless, and its refuge, its safety, is in running. The unfamiliar stimulus may be a signal of danger, and it is safer to get away from it; the animal cannot take chances. On the other hand, animals that are too timid, so that even the familiar becomes too suspicious, cannot get their food and cannot leave a progeny—they become eliminated by the process of natural selection. Even in weak animals an intensified state of the fear instinct becomes biologically abnormal, pathological.

The fear instinct is abnormally developed in psychopathic disturbances. Harmful stimuli or expectation of danger to themselves, to their family, or to friends may arouse the feelings of anguish, anxiety, worry, manifestations of the fear instinct. Objects, thoughts, stimuli, situations, and events of expected danger may keep on changing, persisting for a longer or shorter time, but the underlying pathological state of the fear instinct remains, easily fusing with experiences of possible danger to all included within the circle of the patient's self regard.

Events or situations with fixed sensory stimuli, when repeated, fix the neurosis, very much in the same way as are the "conditional reflexes" in Pavlov's experiments. Other sets of stimuli of an idea-

tional character are transient in duration, while the general, apprehensive, subconscious condition persists unchanging to seize again and again on ever new objects and thoughts, forming psychic compounds of various degrees of stability.

Neurosis may be represented as a *fixed* ideosensory nucleus, surrounded by a more or less *variable* network of associations the stability of which increases with the recession from the nucleus to the periphery or marginal fringe of consciousness.

Fear of strangeness, of unfamiliarity, developed in early childhood, may remain unassociated and thus give rise to a state of vague fear. The instinct, however, may through experience, through some trauma, find for itself an object and become associated with it. "Anxiety, fear, horror," says Mosso, "will twine themselves perpetually around the memory, like deadly ivy choking the light of reason." It is the fear, instinct, the fundamental instinct of self preservation, that gives rise to all forms of recurrent mental states, with all their agony, anxiety, despair, and depression. The fear instinct is at the basis of psychopathic diseases. All the symptoms in their infinite variety are so many different manifestations of the one fundamental fear instinct.

The inner conflict and introspection characteristic of psychopathic troubles, are pathological, solely because of their association with the fear instinct. Mental conflict and introspection never give rise to a mental malady; they are rather favorable to a speculative mind. When, however, introspection and mental conflict are associated with the fear instinct, the result is a psychopathic malady. In the same way a physical sickness in itself, or the thought of suffering, physical or mental, does not give rise to a psychopathic affection. It is only when the sickness, or the thought of disease, becomes associated with the fear instinct, only then does a psychopathic malady arise. The source of psychopathic affections is the fear instinct, a development of which in early childhood predisposes to all forms of psychopathic states.

Functional psychosis or neurosis is an obsession of the fear instinct, conscious and subconscious. Thus one of my patients became obsessed with fear of tuberculosis, manifesting most of the symptoms of "consumption" after a visit of a tuberculous friend. Another patient became possessed with the fear of death after visiting a sick relative of his in one of the city hospitals. Another became obsessed with the fear of syphilis after having been in contact with a friend who had been under antiluetic treatment. In all these psychopathic fears there was a long history of a well developed subconscious fear instinct, often traced to experiences of early childhood. Take away the fear and the psychosis or neurosis disappears.

As we have pointed out, according to the investigations of Pavloff, Vasiliev, Babkin, Savadsky, Mishtovt, Orbeli, Sherrington, and others, ideosensory changes initiated in the central nervous system and especially emotional disturbances, bring about extensive motor and circulatory reactions, accompanied by glandular secretions. Recently Schultze has found that glycosuria accompanies fear psychosis, and that the amount of glycosuria present varies with the degree and intensity of depression

and fear, reaching its highest amount with the maximum of the fear psychosis. The clinical studies of Raimann, Arndt, and also my own go to confirm the same interrelation. The experiments of Cannon, Shohl, Wright, and de la Paz carried out on animals prove the intimate relation of emotion, and more especially of fear—anger emotions, and stimulation of adrenal secretion; the increased secretion of epinephrine gives rise to glycosuria. The extensive motor reactions, the circulatory disturbances, and especially the stimulations of glandular secretions and their consequent effects on the total systemic reactions of the organism under the influence of the fear instinct form a psychophysiological foundation for the psychopathology of functional psychosis or neurosis.

I have formulated the following fundamental principles of psychopathic diseases:

1. *The principle of embryonic psychogenesis.* Psychopathic maladies, like sarcomatous and carcinomatous growths, are of an embryonic type, having their genesis in the psychic stroma of early childhood. The genesis of psychopathic diseases can be traced to a pathological germ focus, to a phobö-experience as germinal nucleus round which the fear instinct becomes organized. This pathological focus keeps up the fermentation, development, and growth of the slowly forming psychopathic symptom complex. Psychopathic states are primarily embryonic. The pathogenic germs of the primitive fear instinct are planted in the embryonic mental tissues of early child life. The psychogenesis of neurosis is an embryonic fear instinct.

2. *The principle of recurrence.* In the simple life of the child, under the influence of slowly changing environment, the psychopathological system of the aroused fear instinct, formed in early childhood, tends to recur, both in the waking and sleeping states, especially in the intermediate hypnoidal states to which the child is subject, as demonstrated by my observations and experiments.

3. *The principle of proliferation and complication.* With the gradual change of the environment and with the growth of the child, each recurrence of reproduction of the fear system tends to an increased proliferation of fear associations. There is a tendency to a formation of a complex psychopathic system which grows more complicated with the proliferation of conscious and subconscious associations, and with the ever increasing assimilation of new masses of experiences, of new increments of sensory, ideational, and feeling elements. The pathological focus with its organizing fear instinct as substratum brings about an ever greater proliferation and complication with the growing assimilation of psychic contents, forming the psychopathic matrix of the symptom complex.

4. *The principle of fusion or of synthesis.* The newly assimilated psychic contents, entering into the slowly forming complex fear system, are at first in a state of confused, incoherent disaggregation and disorganization. With the repetition of the processes of recurrence, proliferation, and complication, the psychic contents become firmly associated, synthesized, and organized into an integral psychic compound with the fear instinct as the main, inner, controlling focus. The newly added psychic con-

tents become fused, synthesized into one complex network, guided by the fear instinct.

5. *The principle of contrast.* Feelings and emotions follow the law of alternation by association of contrast. After an intense, prolonged, and exhausting activity of a complex system with one set of feelings and reactions, another system with a contrasting set of emotions and reaction is brought into function. Thus excitement and passion of emotional pleasure-tone may pass into its opposite and contrasting, disagreeable, painful feeling. Feelings of excitement, passion, and exhilaration may be followed by disgust, nausea, and even vomiting. Such emotional alternation is by some medical men ascribed to fanciful speculative anatomical and embryological connections. The principle is essentially central in nature. The particular form of its expression is a matter of central associations given by experience. The fear instinct becomes attached to the opposed contrast emotions of self regard, such as love and desire. The fear, though positive and primary, assumes a negative and secondary aspect as nonfulfillment of desire or fear of loss of the object of love. Psychomotor reactions with contrast feeling tone may be formed by means of voluntary association for the relief or rather for the inhibition of too great tension of unpleasant overexcitement. The law of contrast is characteristic of the mental life of primitive man and of the undeveloped consciousness of the child, as well as of the degenerative, atavistic states of psychopathic diseases. Psychopathic fear compounds with feelings of depression alternate with systems, having as their feeling-tone states of mental exhilaration. This condition gives rise to that mental alternation so typical of psychopathic diseases, closely simulating manic depressive psychoses.

6. *The principle of recession.* Child experiences tend to lapse from conscious memory. This tendency is further reinforced by the mental process of recession, developed in detail in my works. Cognitive states tend to recede from the focus to the periphery of consciousness. The receding mental states become marginal and submerged subconsciously. Such states, to use a biological Mendelian term, are recessive. Recessive states recede and fade away from direct consciousness with each recurrence or reproduction of the symptom complex, organized and synthesized by the controlling fear instinct.

7. *The principle of dissociation.* Recessive elements and states, becoming marginal and submerged subconsciously, lapse from voluntary control and from recall of conscious memory; they fall outside the voluntary conscious life of the individual. The lapsed states are present subconsciously, and can be reproduced in various subconscious conditions, such as hypnotic, hypnoid, hypnoidal, and hypnoidic, a description of which I give in my *Symptomatology*. Recessive elements and states fall outside the domain of voluntary associations, and as such, they are regarded as dissociated from the patient's personal life activity. Dissociated systems become parasitic, and, like malignant growths, suck the life energy of the affected individual. Under unfavorable conditions and appropriate stimulations these dissociated, parasitic, recessive systems become

manifested in later life, giving rise to fully developed symptom complexes of psychopathic states.

8. *The principle of irradiation or of diffusion.* The various factors of recurrence, complication, fusion, contrast, recession, and dissociation tend to neutralization of various characters of life experiences, entering into synthesis of the pathological complex system. The fear emotion becomes devoid of much, if not of all, of the cognitive content of experience. During this stage of the growth of the psychopathic symptom complex the affected individual may for a time appear normal. The pathological condition, however, is subconsciously dormant. Meanwhile, the fear instinct, acting like a fermenting enzyme, keeps on affecting more and more psychic material. Like a malignant tumor, growing by infiltration, the latent, subconscious fear instinct becomes gradually infiltrated, diffused, irradiated throughout the psychic life of the individual, finally giving rise to a general diffused state of apprehension, anxiety, and anguish.

9. *The principle of differentiation.* With the growth of the child's personal life and with the further development of cognitive activity the general diffused emotion of the fear instinct with its feeling of anxiety and anguish, either through a series of traumas or through the intensity of a shock, becomes associated with some special object or event in the patient's *present life experience*, forming the nucleus of the neurosis, a nucleus which appears central. This apparently central nucleus could not possibly of itself evoke all the extensity and intensity of the fear reactions of the psychopathic states, were it not for the great mass of fear systems which lend the last trauma its overwhelming force. The last trauma, however, is but the exciting cause, simply revealing the latent psychosis or neurosis which becomes differentiated along definite lines of mental life.

10. *The principle of dominance.* Such mental states tend to persist in consciousness, becoming amplified and intensified with the unfolding of mental life. Such mental elements, normal and abnormal, to use a biological Mendelian term, are *dominant*. In many cases, under unfavorable conditions of life and education, the fear experiences of early childhood become reinforced by a series of further traumas, often of the same character. The factor of *recurrence* predominates in the same symptom complex. The fear instinct, like a malignant growth, expands along lines of least resistance. The dominant systems persist throughout the vicissitudes of life, giving rise to a fully developed somatopsychosis or psychoneurosis.

11. *The principle of dynamogenesis.* This factor is important in the domain of psychopathology and psychotherapy. It is intimately related to the more general and more fundamental principle of reserve energy, developed independently by Professor James and by myself. A dissociated system of recessive elements, latent and inactive, gathers force, manifesting itself in subconscious eruptions, convulsing the patient's general life activity. Subconscious systems of recessive states, when called into function, respond to appropriate stimulations with intense psychomotor reactions. The mass of associated systems exercises control on each one of

its constituent systems. When a system is dissociated, the control is removed—it is like a mechanism without its controlling governing gear, manifesting all its latent energy, giving rise to increased *dynamogenesis*. The emotion of the fear instinct becomes abnormally intense and uncontrollable.

12. *The principle of inhibition.* According to the principle of irradiation and fusion, the fear instinct tends to spread and get diffused throughout the patient's personality. The fear instinct keeps on oscillating, spreading, changing with age, education, sex, and fluctuations of personal interests, spreading to states farther and farther removed from the original pathological focus with which, however, the states remain firmly associated. The neurosis may thus pass through many stages of metamorphosis with new determinations, but the fear nucleus remains ever the same, gathering more and more energy with each transforming interest. When the fear instinct becomes intense and diffused, it begins to exercise an inhibitive influence on nervous and mental functions. This inhibition of the hypertrophied fear instinct is specially strong on all those functions and systems that enter into the synthesis of the psychopathic aggregate.

13. *The principle of diminishing resistance.* In proportion as the psychopathic condition with its symptom complex keeps on recurring, the pathological system formed is gaining not only in energy but also in *ease* of manifestation. The psychopathic state is evoked at the least occasion. The psychopathological symptom complex emerges at an *ever diminishing* intensity of stimulation. The influence, the control, the resistance of associative systems, constituting the individuality of the patient, is more and more weakened. The *resistance* of healthy, normal associations is ever diminishing, until a point is reached when all power of opposition and control is lost. The psychopathological system with its symptom complex gets complete sway over the patient's life and becomes an *uncontrollable psychopathic obsession*.

(To be concluded.)

LIMITATIONS OF FUNCTIONAL TESTS OF THE KIDNEYS.*

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There have been very few clinical tests in recent years which equal in importance and results those of the functional tests of the kidneys which render it possible to estimate the efficiency and the general condition of the organs and to foretell the probable result of operation or other invasion. That which was in former years largely a matter of estimate and guesswork, is now one of definite measure and precise knowledge within rather fixed limits.

To the experienced reader it is not possible to offer anything new, nor is it appropriate to present a long exhaustive paper, but rather one of suggestive elements of the subject, which may promote discussion. On this basis it seems well to divide the subject into questions as to the value of the various

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recognized tests, particularly by polyuria, indigocarmine, phenolsulphonephthalein, phloridzin, urease in the estimation of urea in the urine and blood, and finally the possible application of blood pressure observations during these tests. Association with these technics of the older methods of investigation, particularly uranalysis for physical, chemical, microscopical, and bacteriological data, cannot be omitted and must be profoundly respected.

Let us briefly consider each question in turn. Polyuria was chiefly elucidated by Albarran, followed by Guyon and others, and briefly consists in the administration of 500 c. c. or less of water, and in the observation of the rate and quantity at which the two kidneys accommodate themselves to the increased output. This test is now judged in itself as not sufficiently reliable and has, therefore, been relegated to the position of adjuvant of other tests. It may be reliably employed as follows: After the ureteral catheters are in place and the flow established for five or ten minutes, the pint of water is administered at about the same time that the dye is given, phenolsulphonephthalein or indigocarmine as the case may be. By measuring the urine excreted in the two periods of a half hour each, it is almost invariably possible to secure a correlation and mutual corroboration of the outputs of both the fluid and the dye in a way that is comforting and reassuring. In other words, it very rarely fails that the kidney which excretes the largest percentage of the dye also excretes at least the full if not the greater portion of the water. Thus a value to the polyuria test is given, which by itself is often lacking in that the presence of the dye at once betrays what might be misleading deductions otherwise. Many patients cannot take 500 c. c. of water at one sitting. In these one must be satisfied with less, and often, therefore, must proceed without the typical polyuria test. On the other hand also, sometimes patients who will accept the 500 c. c. of water will excrete a very large quantity in a short time which will, of course, have a proportionally low percentage of dye. In such a case allowance for the polyuria must be made, and if contradictory results seem to occur, the tests must be repeated without the polyuria element. If the results are contradictory, however, the amount of dye may readily be computed in both specimens, by multiplying the quantity of fluid excreted by the percentage observed, just as is done in the determination of the quantity of urea in exactly the same circumstances. In other words, a specimen which is copious in quantity of fluid seems to be low in the percentage of dye, when after such a computation it reveals itself as having contained much the higher quantity of dye.

One of the great advantages of giving water, either the typical 500 c. c. or as much as the patient will tolerate, is that it tends to prevent reflex oliguria or anuria, such as occasionally appears after the penetration of the ureteral catheters.

We should now take up the second method, that of injecting phenolsulphonephthalein or indigocarmine into the vein or the muscle of the patient to be investigated. Here again it is wise to see that both ureteral catheters are working well, or, if it is possible, to pass only one that is discharging normally and preferably without leakage, which may be de-

termined by employing the largest size of catheter without discomfort and by observing the ureteral mouth for the leakage through the cystoscope. The contents of the cleansed bladder withdrawn by catheter or the cystoscopic sheath before the ureteral catheter is withdrawn, will then satisfactorily represent the excretion of the kidney whose ureter was impervious to a catheter. At about the same time that the pint of water is administered, one c. c. of phenolsulphonephthalein is injected into a vein and then the time of its appearance in the urine is noted in my practice by the following detail: Instead of putting alkali into the receiving bottle, which instantly changes the features of the specimen for the pathologist, I spread the alkali upon a piece of filter paper, blotting paper, or a towel, and then place a drop of urine on this every minute or two. The whiteness of the paper allows one to perceive the merest trace of pink color and thus to note rather more accurately than usual the time of the excretion of the dye, which is now recognized as from



FIG. 1.—Supplies for injecting phenolsulphonephthalein and indigocarmine. From left to right are: Tincture of green soap, alcohol, gauze sponges, tincture of iodine, cotton toothpick swabs, author's c. c. syringe and needle, ampoule of phenolsulphonephthalein and file, cover of Record syringe box with 19 c. c. of freshly boiled, recently distilled water, 20 c. c. Record syringe, paper of 0.16 gram. of fresh indigocarmine powder, assorted needles, tourniquet, adhesive plaster, and dressing.

two to five minutes for the average normal kidney and several or many times this interval for the usual abnormal organ. A good eye for color will notice the urine change to a deep orange as soon as the dye begins to appear in acid urine; but this is not a reliable point, because it is best seen in clear urines and is misleading in turbid specimens. The blotting paper method is therefore much to be preferred.

We now come to the details for permitting two steps, first, the determination of the percentage of the dye in the specimens, and, second, the full laboratory investigation of them. Before the administration of the dye but after the administration of the water, I take two specimens of at least fifteen minutes' duration, which are set aside for the pathologist as representing the function of the kidneys under the influence of two factors, not only the water taken in, but also the irritation, if any, of the ureteral catheters. For comparison and corroboration all specimens taken should be sent to the pathologist, which may be promoted by the following steps: First, the absence of alkali in the receiving bottles of all the dye specimens of which there are commonly two preferably of thirty minutes each, not infrequently through lack of opportunity of fifteen minutes each. Each is then shaken, if turbid, and divided into halves, of which one is sent to the

pathologist and the other half is treated with the alkali and the reading of its excretion of dye taken, which is manifestly half the output of the kidney for the period of time. This reading should, therefore, be doubled in order to equal the true index of excretion, and I call this step the "method of subdivision." It is an essential in my mind because one cannot trace too carefully the uranalytical characteristics of the excretion throughout the tests.

Those who have done much of this work are familiar with the fact that the most convenient readings on the colorimeter are from about thirty per cent. upward, and with the fact that below thirty per cent. the colors are so pale as to make it almost impossible to read percentages within five per cent. of error, which has been accepted as the standard of accuracy. By my "method of subdivision" I feel that far more accurate readings may be



FIG. 2.—Subdivision is illustrated by the bottle which contains half the specimen excreted ready for pathological examination for physical, chemical, microscopical, and bacteriological characteristics, and by the smaller graduate which contains the other half of the specimen. Subdivision is illustrated by the two graduates. In the smaller graduate, the second half of the specimen has been raised to 100 c. c. in order to give a positive reading of its small percentage of dye. The larger graduate contains the litre of alkaline distilled water with 1 c. c. of dye for the test solution. It will be noted that the color in the two graduates is about the same. In this specimen the actual reading by subdivision was 80 per cent, which, divided by 10, gave 8 per cent. for half the specimen incident to the subdivision. This multiplied by 2 gave 16 per cent. as a very accurate reading for the whole specimen excreted.

obtained. The steps are as follows: When the quantity of dye in a specimen is obviously very little, instead of raising this excretion to the dilution of 1,000 c. c., it is raised only to a prime factor of 1,000, for example, 50, 100, 200, or 250 c. c. The reading is then taken and must obviously be divided by the number of times which the prime factor of subdivision is contained into 1,000 which, following the foregoing prime factors in the order given, would make the divisors 20, 10, 5 or 4, and then, if the method of subdivision has been followed, this reading must be again multiplied by two to reach the correct result. A good eye for color with the aid of these procedures will make the readings almost absolutely accurate.

I have mentioned the injection of one c. c. of dye into the vein. In order to avoid error in reading,

exactly the same quantity must be used in making up the control or comparison solution, which should be accomplished by using the same syringe for measuring the fluid for the container as for the vein.

It must be remembered that a cubic centimetre is about sixteen minims and that the loss of one drop is an error of nearly seven per cent. and two drops, one of nearly fourteen per cent. It is significant to note here that hardly any readings exceed eighty-five per cent., a fact which may be due to such minute losses as well as to delay in the excretion of the dye after the period of observation is over, or to its destruction within the body. Therefore I cause the same syringe and needle to be used as the measure of the dye in both instances for the vein and for the control fluid, and I feel that five or ten per cent. increase in these readings has been secured.

About a year ago Dr. Martin W. Ware¹ brought out a paper on phenolsulphonephthalein, in which he considers it an index of the acidity of the urine. I disagree with this, while admitting that alkaline urine, especially ammoniacal urine, will greatly disturb the color conditions. One case is recalled in which the ammoniacal elements were so abundant that a peculiar brick red color was produced, so different in tone from the purple red of the control glass that a reading was impossible. There was at that time nothing found in the literature to explain the condition adequately, so that I communicated with the chemists who produce the ampoules of the dye, and their representative kindly called to investigate and suggested that an ammoniacal urine should first be acidulated with dilute hydrochloric acid, in order to eliminate the offending ammonium salts and then alkalized with the hydrate of sodium or potassium. This little point is worthy of remembrance, because it will make correct reading possible in urines wherein otherwise it would be impracticable.

A word should now be said as to the indigocarmine test which, while it is like the phenolsulphonephthalein test a color reaction, differs from it in being practically entirely qualitative in the absence of a definite determination of percentage of excretion. There is no doubt that many observers have acquired experience and skill, so that in actual practice it is feasible for them to reach a reliable judgment of the kidney function by means of it. There are two general steps in carrying out this observation, one without the ureteral catheters and the other with them in place. In the former 0.16 gram of indigocarmine is dissolved in ten or twenty c. c. of freshly distilled water and injected, preferably into the vein, after the bladder has been rendered as clean as possible. Cystoscopy is then begun and the ureters are watched for the earliest appearance of the color, which by admixture with the urine is at first a pale yellowish green from the normal side or a slightly whitish green from the abnormal side if pus is present to combine with and alter the color tone. These faint tones rapidly deepen to a positive blue in about five minutes on the normal side, and in a highly variable time on the diseased side in accordance with the severity and extension of the

¹Ware: The Futility of Phenolsulphonephthalein as an Indicator of Renal Function, NEW YORK MEDICAL JOURNAL, Feb. 28, 1914.

process. Total absence of excretion within thirty minutes is regarded as proof of a destroyed kidney or a blocked ureter. The obstacle in the way of this manner of observation in some cases, is that the dye comes down from the normal side so rapidly as to make it very difficult to see what the pathological ureter is doing. The ureteral catheters may be passed or rather the dye administered after they have been passed, and a similar observation carried out. The time of first appearance and the rate at which the deep blue is developed are the forecasters of the kidney function. One advantage of the indigocarmine test is that, after the catheters are in place and the blue color definitely but not deeply developed, observation may be made as to leakage into the bladder around the catheters and allowance made in the other details of the case. On the other hand, the deep orange color of the phenolsulphonephthalein in acid urine and its purple red tone in alkaline urine, render the determination of leakage around one or both catheters equally easy. But this part of the cystoscopy must be begun early, especially if the mixed or bladder urine is alkaline, otherwise the red color will be so positive as to nullify it.

One may readily estimate whether or not leakage will occur by observing the fit of the catheter in the ureter. If it is thought that the leakage will be manifestly large, then it is worth while to leave the cystoscope in the bladder suitably supported on a sand bag or other implement in order to prevent its weight from dragging on the neck of the bladder. As soon as the dye is distinct from the ends of the ureteral catheters, the bladder may be again distended, the light turned on, and the leakage noted.

The question of leakage around the catheters in all this work is important and is probably equally distributed between the two sides if the same calibre and type of catheter is used. Universal preference is now for the so called flute-end catheter, which has an oblique end opening and two side openings opposite each other, one in the first and the other in the second cm. of length.

All the best types of modern ureteral catheters have more than one opening, and not a few observers prefer the round tip to the flute-end instrument on the ground that the latter is inclined to cause bleeding even when there is no disease. It cannot be denied that bleeding is readily induced by the obliquity of the point in the flute-end catheter, unless the insertion is very gentle indeed. I think that by ceasing effort to pass them at the least sign of obstruction, and by withdrawing it for a cm. or two and then by waiting for the heat of the body to soften it, commonly the tendency to bleeding will be corrected. The advantage of this instrument is so great in having both an end and two side openings, that it seems a pity to abandon it at all lightly. A catheter which is seen to fill the ureteral opening fairly well, will ordinarily have little leakage, while one whose size must be reduced in order to pass is commonly one whose delivery will be least, first because its own calibre may not be up to the rate of flow of urine, and, second, because it may lie free in a ureter long after the offending narrowing has been passed. Thus it will be seen that there are many little technical diffi-

culties which prevent absolute precision and indubitable results such as a general surgeon once stated in my hearing were his expectations, while he totally forgot that no department of medicine can measure up to this demand and that the whole science and art are after all the creatures of judgment, estimation, foresight, and experience rather than matters of more or less definite computation. Allowance for this bladder leakage should be made in all quantitative estimations, and along with the majority of observers, I secure the bladder specimen after the examination either by catheter or evacuation, and determine its percentage of dye, which must be added to the separate observations in making up the total excretion. To which kidney shall be assigned the largest part or whole of the leak, depends upon a good fitting catheter on the normal side and suitable penetration for fifteen or twenty cm. on the afflicted side, with reasonably

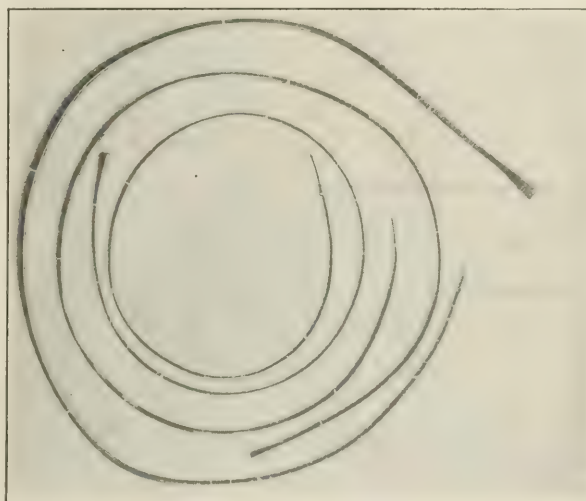


FIG. 3.—Dilating ureteral catheters to prevent leakage. No. 1 points to the olive or globe tip which, by penetration of the ureter, tends to prevent leakage either of urine or argyrol and similar preparations used in x ray investigation. No. 2 is Pasteau's catheter, tapering from size 2 Fr. at the tip to size 8 in the shaft. It will be noted that 1 and 2 are graduated in the usual manner throughout. No. 3 is the ureteral dilator, size 5 at the tip and size 12 in the shaft, with graduations for only about 15 cm. of length on account of its large shaft.

prompt establishment of flow and without signs of plugging of the catheter from mucus or pus. If the normal ureter has received a catheter of full diameter, and if the opposite ureter has not been performing well, it is likely that the majority of the leak is from the diseased kidney. The inlet of both catheters should be carefully examined for mucus, pus, or other plugs. A case illustrating the point is one of a badly broken down left kidney whose excretion of urine for the first specimen was less than a fifth of that of the normal side, but whose excretion of dye through the catheter was very little or almost none, while in the bladder there was a fourth part of that from the normal organ. Flow through the small left catheter had been secured only by first running in a little boric acid water, whose repetition did not add to the output. On withdrawing the catheter, it was found that the eyes were plugged with mucopus, and it was felt that at least no small portion of the dye in the bladder had come from this side.

There is a dilating ureteral catheter made, which is conical in its soft flexible tip, beginning with the size No. 2 Fr. and increasing to No. 8 Fr. This catheter may be passed into the normal or nearly normal side, and by its gentle distention prevent all leakage; then such leakage as does appear must necessarily come from the opposite side. The difficulty with this plan will occasionally be that the act of distending the ureter may cause the kidney function to hesitate and thus produce misleading results.

The phloridzin test enjoyed wide popularity for a time, until it was found by such observers as Beer² that the findings were most contradictory in that not infrequently the normal kidney under the pressure of extra work was considerably the less permeable to the substance, and showed the longer delay in its appearance. One or two instances seem to have been secured in which the healthy organ was practically without excretion until after the diseased kidney had been removed and its poisonous influence upon its fellow thus corrected. The almost universal doubt, at least in the United States, concerning the phloridzin method induced me to discard it.

Urease is an enzyme product recently described to be of great value in the determination of urea in urine and blood, and will probably be an improvement on and supplant the more cumbersome and difficult cryoscopy of both blood and urine which, while serving to contribute valuable evidence, are not conclusive, and are most technical in performance as well as rather expensive as to apparatus. All these factors have tended to lead to their omission by the majority of authorities, so they require no further notice here. I am inclined to differ, however, from that fad by which urea determinations are more or less distrusted unless the quantity ingested is known. This is undoubtedly necessary for the most accurate possible measure of the urea element, but what we desire, in the kidney function estimation, is knowledge of what the two organs are doing during the same period of time and in the same circumstances, such as diet, fluids, bodily repose, instrumental invasion, dye stuff administration, and the like. It follows, therefore, in my opinion, that a portion of all the specimens secured should be submitted to full standard uranalysis, including the urea determination, not only that in percentage, but also that in total quantity, as suggested by Barringer³ and indicated by multiplying the percentage indexed by the quantity of urine secured. This is important, because the normal kidney will often have the larger output in quantity of fluid, but the smaller in percentage of urea, which, however, when multiplied by the quantity of urine, will give the total urea for the given period of time much larger than that from the diseased side.

These remarks introduce consideration of the place which should be assigned to standard laboratory investigations of the urine as a valid element in the determination of kidney function, using this term, function, not in the narrow sense of the mere rate and amount of excretion of a chemical artificially introduced, but in the broader, fuller sense of

the useful and reserve duty which the organ gives to its owner. There is no doubt that all the evidence leads to the best verdict in the consideration of a medical case as well as in the trial of a legal case, and thus I feel that it is scientifically unsafe and surgically unwise to rely on any single element of diagnosis. After a careful history and general physical examination, including the renal ureteral and vesical zones of the body, the patient is put to bed with the bowels completely emptied by cathartics and enemata and is on a nephritic diet for forty-eight hours. There are manifestly cases in which such deliberation cannot be indulged in, but these are in a minority, while the majority are positively benefited by the repose as part of the preparation for the operation. During the first twenty-four hours a full specimen of urine is taken and examined physically, chemically, bacteriologically. And then during the second twenty-four hours the so called functional tests *per se* are performed, in my practice, in the following manner when circumstances permit. A most careful cystoscopy⁴ is performed, whose findings can never be disregarded in these cases, but whose details may not here be drawn through respect for brevity of this contribution, and at its end the ureteral catheters are inserted of full size and as far as the ureters permit, up to about twenty cm. in most cases. Five or ten minutes are allowed to elapse in the establishment of permeability of the tubes, which may often be aided by the injection of one or two c. c. of sterilized normal salt solution from a small syringe in order to clear the eyes of the catheter, most particularly on the diseased side where plugs may have been scooped up. The pint of water is now administered and separated specimens for analysis are secured during the first fifteen minutes. The phenolsulphonephthalein is next injected intravenously, and by the technic previously stated, the time of the appearance and the quantity of dye excreted are taken in two periods of equal duration determined entirely by the condition of the patient. The best intervals are probably one hour each, but good results are obtained in periods as short as fifteen minutes in some individuals. A small catheter may be left in the bladder for continuous drainage, or passed before and after the phenolsulphonephthalein test, in order to obtain an accurate determination of the leakage around the catheters. If it is suspected that this leakage is or will be a large factor, the cystoscope may be left *in situ*, and as soon as the dye is positively present, a view is obtained of both ureters in order to realize which catheter fits least. Having obtained two specimens from each kidney and one of mixed leakage into the bladder, an accurate estimation is possible for the following points: 1. The polyuria curve which will commonly be found to coincide with the dye curve; 2, the time and amount of dye excretion on each side; 3, the percentage of dye in the bladder contents; 4, the total dye in the five specimens just named; and, 5, by the process of subdivision, analytical observation of the conduct of each kidney at rest, after the administration of the water and after the injection of the dye. These data are more rapidly reached in a certain sense than they may be de-

²Beer: The Phloridzin Test, *Journal A. M. A.*, June 13, 1908.

³D. S. Barringer: Comparison of the Total Urea Excreted by Each Kidney in Surgical Diseases of These Organs, *Surg., Gyn., and Obst.*, Dec., 1908.

⁴V. C. Pedersen: Topography of the Bladder, with Special Reference to Cystoscopy, *NEW YORK MEDICAL JOURNAL*, Aug. 23, 1913.

scribed or discussed, so that the method is by no means unduly laborious.

If the performance of the kidney with respect to the phenolsulphonephthalein during the first period selected has not been satisfactory, then after the patient is returned to bed with the catheters in place, the work may be continued. It will, in some cases, be found that the diseased kidney begins to excrete the dye a long time after the good one, but in the total may nearly equal it during the third or fourth hour, which throws this test back upon the basis of the indigocarmin test.

In the same circumstances of doubtful observation with the phenolsulphonephthalein, and in the effort not to weary the patient by leaving the catheters *in situ*, I prefer to inject into the vein the usual dose of indigocarmin and then, during a period of from fifteen to thirty minutes, the shorter the better, endeavor to see what the kidneys will do with a different dye. By both the last two details, therefore, it is possible to bring in corrections for the other observations without material disturbance of the patient.

It is well to know what the patient does during the day which follows such a test, and the writer is rather of the opinion that another twenty-four hour specimen under the influence of antinephritic diet should be taken, as possibly pointing to resistance of the kidneys to entrance into both lower and upper urinary tracts. Some may feel that this is too complete a review of each case, but I will register my request now, that if any surgical lesion of my kidneys develops, every safeguard against error and every guarantee of safety shall be employed. Every physician who stops to think will take the same viewpoint for himself, and he should do likewise for his patient.

In the introductory paragraph of this paper allusion was made to blood pressure, and in closing I wish to bring up the following points: It is a well known fact that blood pressure in renal disease may be disastrously raised by excessive water drinking. With this fact in mind, independently of any suggestion in literature, I determined to see whether the blood pressure would be altered by the administration of the water or the injection of the dye stuffs and I have found as follows: While by no means universal, it is a suggestive fact in some of these cases that the blood pressure of the first twenty-four hours in bed will rise considerably after the administration of the pint of water and again in lesser degree after the administration of the dye. A series of normal cases were taken, and it was found that this slight rise in blood pressure regularly declined to the normal at about the same time as the polyuria curve declined, and as the excretion of dye approached its minimum. Then it seemed to be demonstrated that, at least in some cases of unilateral disease, the normal kidney or the better kidney will follow about the same course. It seems reasonable to feel, therefore, that when we are able to note such a performance on the part of the better organ we have secured an additional evidence of the fact that it possesses a reserve of no mean proportions, and one which may be relied on in the hour of stress after removal of its fellow.

The purpose to be brief in this contribution com-

pels me to close. It is well to point out that case reports have been intentionally omitted, and that the effort to review that which is best in this work as our knowledge now stands, and to state that which I have found to be the choice, have been the chief aims of this paper. If these more or less disconnected remarks serve to promote a general discussion through which all may gather aid in the service of patients, then the labor of writing will have been generously rewarded.

45 WEST NINTH STREET.

MISAPPLIED BONE SURGERY.*

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I purpose to speak of the adverse aspect of the results of operative orthopedic surgery. I should greatly prefer speaking of my admiration of the original and ingenious work of experts and the extraordinary results that have thereby been accomplished in suitable cases; but from experience I am convinced that greater good may ultimately be accomplished by efforts to avoid misapplication of bone surgery.

Philadelphia has very largely succumbed to the operative craze that has manifested itself elsewhere and is characteristic in its periodicity. This hysteria has taken possession, and has apparently superseded attempts to avoid the risks of operation, the postoperative uncertainties, and the possibility of the production of even worse conditions. During the past few years, many operative procedures have been enthusiastically advocated and extensively employed, that have later been either abandoned *in toto* or reserved for use only when peculiarly applicable to the existing conditions. It is not necessary to do more than refer briefly to the history of such operative measures as tendon transplantation; the excision of tuberculous joints; the mobilization of ankylosed joints; arthrodesis; operations for visceroptosis; and the more recent use of metallic plates for fractures, and their subsequent replacement by heterogenous or autogenous bone transplants.

The hysteria of the present time appears in the form of operations upon bone, especially the application of bone grafts to ankylosed joints involved in bone tuberculosis, and of metallic plates to fractures. During the last four years particularly, such operations have been performed by especially expert surgeons, and as well by less careful and less experienced men, who have adopted the method because of the overenthusiastic statements made by its advocates. Such operative measures, when skillfully employed, in well selected cases, possess many advantages; but this overenthusiasm has caused them to be resorted to when the conditions were unfavorable, with results such as might have been expected. When a man who devises any procedure states that it is always applicable and always, or nearly always, successful, and yet we constantly see unfavorable results following that procedure when adopted by others, we are forced either to doubt the veracity

*Read before the New York Academy of Medicine, March 18, 1915.

of the statement or to wonder at the inability of the maker of it to see that to the method of procedure should be ascribed the unfavorable results. Hear what J. Chalmers Da Costa said in the Samuel D. Gross Address for 1914-15: "The surgeon, the real surgeon, is something far above and beyond the mere operator. . . . I am convinced that knifemanship is the easiest branch of the profession, the most readily acquired, the most admired, and the most profitable financially. Young men often seek it out as a career. A man may operate with admirable dexterity and yet do very bad surgery, operating perhaps when no operation should be done, or removing, it may be most skillfully, what ought not to be removed. Real greatness in an operation is never grasped or exhibited by the mere knifeman."

My colleagues, the members of the Philadelphia Orthopedic Club, are constantly being called upon to correct unfavorable conditions that have followed such operations; for even the most skillful surgeon sometimes fails to secure the kind of result expected. The surgeon of less experience, of course, obtains worse results; and the venturesome tyro, still worse. The total accumulated results are set down to the debit or credit of the operative procedure. It is a question, however, whether the failure in such cases is due to faulty technic, owing to the inexperience of the operator; to a too hasty recourse to operative measures; or to a peculiar obstinacy of the patients, which renders them unresponsive to attempts to make them conform to the required standards.

In consulting a physician, patients have a right to expect him to analyze their condition carefully, so as to be able to advise the therapeutic measures best calculated to afford them permanent relief. Therefore, instead of deciding hastily upon an operative procedure, he should first exhaust all means of arriving at a correct understanding of the patient's condition, and see whether conservative treatment would not be better adapted to it. As a large part of the information needed in such cases depends upon radiography, it is becoming more and more important that this means of diagnosis should not be neglected. Radiographer and clinician should co-operate in determining the structures about which information is to be sought, and the best means of securing satisfactory plates for the purpose. It is the duty of the clinician to analyze the x ray findings; in no instance should he depend entirely upon the report of the radiographer.

Radiographic plates may be classified under four heads: Good, bad, misleading, and worthless. Plates that are overexposed will be useful for showing dense bone, but will not show properly the relative density of bone that has been rendered less dense by disuse or by some pathological process. Such overexposed plates have been produced as evidence in cases of nonunion, when plates of the same cases made with such exposure and development as would show tendons have revealed callus formation. I have seen plates that showed, not only nonunion, but also entire absorption of the distal fragment; yet fresh radiographs of the same cases, taken within twenty-four hours with short exposure and slow development, revealed the presence of the distal fragment in its entirety—not absent nor entirely destroyed, but merely atrophic. Such plates are in-

valuable in determining the presence of bone atrophy.

A series of carefully prepared plates will permit one to witness the progressive changes from bone atrophy to normal density, with the deposition of callus, complete ossification, and fixation following the application of measures intended to increase circulatory activity. When an x ray plate shows bone atrophy, this should be regarded as an indication for diminishing the pressure from constricting bandages or splints and for the enforced application of hyperemia, either passive or physiological, or combined. It has often been a great gratification to me to see the rapid repair that has followed such treatment, and it may be regarded as an evidence that the absorption of bone may be induced by disuse, by too much splinting, and by too tightly applied bandages, in fact, by anything that tends to diminish the circulatory activity of the parts.

Notwithstanding the great diagnostic value of properly prepared radiographic plates, it not infrequently happens that surgeons are misled by radiographs into preparing unnecessarily for operation; and that on operating, a much more favorable condition than is indicated by the plate, is unexpectedly encountered. The prevailing custom of using stereoscopic radiographs is a possible source of error. In order to obtain stereoscopic plates, the same part is exposed twice, at different angles, upon two separate plates. It is apparent that if these two plates are properly placed in the stereoscope and viewed with both eyes simultaneously, one blended picture, having a depth of penetration that will reveal the structures involved, will be obtained. It is a mistake, therefore, to take one of the stereoscopic plates alone as a basis for study; because one may then, owing to the angle of exposure, apparently see an exaggeration of the real conditions, or may fail to find in the plates structures that are plainly visible when the two plates are properly studied together in the manner intended. Photographic prints taken from radiographic plates are absolutely valueless for accurate study. In the process of printing, some of the shadows on the original negative may become relatively increased or diminished; and this will materially lessen the usefulness of the picture. Lantern slides appear, at present, to be the most satisfactory means of duplicating radiographic plates; but if they are not properly prepared, they also are misleading, and therefore unreliable.

The present wave of operative hysteria has led to the application of bone grafts to ankylosed joints involved in bone tuberculosis. The adoption of the Hibbs or the Albee method for the treatment of tuberculosis of the spine recalls to our minds Lorenz's advocacy of ankylosis as the best method of curing bone tuberculosis. It will be remembered that many orthopedic surgeons took exception to his opinion, because they had secured movable joints with function, in such cases, by recourse to various mechanical, hygienic, and therapeutic measures. It has now become an established fact that bone tuberculosis is controllable in many cases, depending upon the amount of destruction already produced, the ability of the tissues to resist the invasion of the tubercle bacilli, and the recuperative power of the patient. To subject every patient with bone tuber-

culosis to an ankylosis operation, and to depend upon such operation alone as a method of treatment, is contrary to the accepted practice of the best authorities. In regard to restoring motion to ankylosed joints, I would say that it has been my misfortune to see a large number of patients who were much disappointed to find that they were worse off after the mobilization than before. The inability to re-establish muscle function, lost through atrophy from long disuse, made a movable joint a greater disadvantage to the patient than the former ankylosis had been.

In fracture cases, the fear that faulty position may result has often induced surgeons to resort to operative measures without first having exhausted safe conservative therapeutics. Metallic plates screwed into fractured bones, as described by Arbuthnot Lane, would appear to offer a theoretically perfect method of avoiding all the legal and other unpleasant sequelæ in these cases. That such is not the invariable rule, however, is evidenced by the accumulating records of instances of infection, bone atrophy and long delayed union, and of cases in which loosened plates have necessitated removal. It will be seen, therefore, that there are worse consequences in fracture cases than faulty position. The radiographic study of the bones of ununited fractures usually reveals bone atrophy or bone absorption in close relation with the metallic plates employed to secure immediate fixation.

W. R. Jackson (*Surg., Gyn. and Obstet.*, March, 1915) is convinced that fractures are always delayed in union by open operation; and that when union after operation is finally secured, months have elapsed. Far better and speedier functional results may be obtained in simple fractures without operation than with it; and if fractures were properly treated from the beginning, subsequent operations for malunion or for nonunion would be very rare. J. B. Roberts, J. H. Gibbon, Turk, G. G. Davis, and Ashhurst strongly deprecate the indiscriminate recourse to bone operations in fractures, especially the use of metallic plates. Robert Jones (Present Treatment of Fractures, *British Medical Journal*, December 7, 1912), in his analysis of the Report of the Special Committee appointed by the British Medical Association, directs attention to 2,596 cases in which no operation was performed, 147 in which primary operation was done, and seventy-eight cases in which it was recognized during treatment that good position was not being maintained, and in which operation, as a secondary measure, was employed. Only sixty per cent. of good functional results were obtained. In eighty-three cases operated in for malunion or nonunion, only thirty-eight per cent. of good functional results was obtained.

I have seen a large number of patients who had been through operative procedures that gave promise of a speedy restoration of function to fractured limbs, but in whom, after periods varying from six months to two years, the still ununited fractures had produced such mental anguish and warped judgment as to lead them to criticize most unkindly the surgeon and the operation that had promised so much. Such adverse reports do not always reach the ears of the operator, but are submitted to another surgeon, whose skill is sought by the patient to repair

the double damage produced by the accident and the surgical procedure. In order to overcome the errors of the original treatment, another operation is often urged; and it frequently happens that the determination on the part of the patient to resist further surgical interference renders it necessary to have recourse to other methods. Indeed, such reluctance is not to be wondered at. How often would patients consent to operation, if they were placed in possession of full information concerning the chances of success?

It is interesting to observe Lund's (*The Surgeon and the Ptosis Problem*) convincing conclusions that cures will be rare after operation for visceroptosis. The adverse reports that are rapidly accumulating are convincing that visceroptosis is not always cured by operation, and that there must arise some skepticism when an overenthusiastic operator reports brilliant results that no one else can see or obtain. A woman with a fracture, who consulted one of the most prominent surgeons of this country, was urged by him to have it fixed with silver nails. The inquisitive patient sought accurate details and asked, among other questions, how long the nails would remain in the bones. She was informed that he had never known the nails to become loose, and had never had to remove any that he had inserted. "It all depends," said he, "on the manner in which they are put in." While he did not, indeed, tell an absolute falsehood, yet he deliberately and grossly deceived the patient; for, as was subsequently learned on good authority, he had never used nails.

Illustrative of the difficulty in determining the exact procedure that induces bony repair, is the record of a patient at Jefferson Hospital, who presented bowing of both forearms. Double cuneiform osteotomy of the radii was skillfully performed by Dr. A. J. Davidson, but was not followed by union. At the expiration of one year there was no provisional callus apparent in the radiographs, and there was distinct evidence of absorption of the distal fragments. Splints were minimized, and physiological hyperemia was induced; but these measures, together with the injection of zinc chloride, were without apparent result. An autogenous bone transplant operation was performed on the right arm, but not on the left, which, otherwise, had been subjected to practically the same treatment as its fellow. The operation was followed by repair, with disappearance of the bone atrophy in both arms; and both are now alike in normal function. The question arises whether the bone transplant in the right arm caused the fracture to unite. If so, what caused the union of the fracture in the other arm? or would both fractures have united without any bone transplantation?

In view of the large number of unfavorable results in the treatment of these bone cases, I should like to suggest the formation of a national society or committee, to be devoted exclusively to reporting the negative or bad results of every orthopedic procedure; in order that we may ascertain the reasons for the postoperative disasters, and thus avoid them. Such a society might be called the Adverse Society, and should truthfully report the disadvantages of different methods of treatment, their failures, and the deaths. C. F. Painter (editorial article, *Am.*

Jour. Orthoped. Surg., October, 1914, p. 341) has well emphasized the danger of the present time in the matter of the Albee bone transplant when he states: "It is a very regrettable fact that the glamour of operative surgery is so pervasive that given one case where it might be undertaken, there are many who are willing to advise it and attempt it with but very slight consideration of whether it is clearly the thing to be done in the case in question."

In order to lessen or prevent misapplied operative orthopedic surgery, the following facts should be remembered:

1. Operations are rarely necessary in cases of fractures that have been treated on scientific principles from the onset.

2. Before operating for nonunion, definite radiographic information should be obtained concerning the presence of callus, as well as that of bone atrophy involving the fractured bone or neighboring bones.

3. Bone transplants, or other operations for securing ankylosis, are not applicable to the early stages of bone tuberculosis, when functional recovery may be obtained with the control of the pathological process.

4. When it becomes apparent that the pathological process has proceeded to an extent beyond the possibility of functional restoration, ankylosis may be secured by either the brilliantly conceived Hibbs operation or that of Albee of broader application.

5. Ankylosing methods do not cure the bone tuberculosis, and therefore they must not be relied upon solely, but must be associated with prolonged fixation and other accepted methods of treatment.

6. Before resorting to any operation, except in an emergency, a consultation should be held, preferably with the attending internist.

7. When operative procedures are finally determined upon, the patient should be told the truth, the whole truth, and nothing but the truth, concerning his operation. If this information were reduced to writing and duly signed by those participating in the consultation, the total number of operations might be reduced, but the impressions that patients often appear to entertain in regard to the functional results obtainable would be removed.

1611 SPRUCE STREET.

PERFORATION OR RUPTURE OF GRAVID UTERUS BICORNIS UNICOLLIS.*

With Remarks on Perforations of the Uterus.

By DAVID W. TOVEY, M. D.,
New York,

Adjunct Professor of Gynecology, Polyclinic Medical School and
Hospital.

There is so great a variety in the manifestations of congenital defects of development of the uterus that for a long time it was thought that these were accidental and did not follow the well defined lines which govern congenital deviations from the normal in the fetal and infantile body as a whole. It is to Kussmaul and Faust that we owe a full and clear explanation of the developmental anomalies affecting the uterus. To understand these anomalies, it

is necessary to refer briefly to the embryogenesis of the uterus.

It is formed by the junction and fusion of the ducts of Müller (Fig. 1), which is accomplished in great part before the twelfth week of embryonal life. Up to the twentieth week of embryonal existence, however, there still remain distinct traces of fusion of the two ducts, the uterus at this period being distinctly bicornate. After the twentieth week, and during early infancy, the uterus presents the peculi-

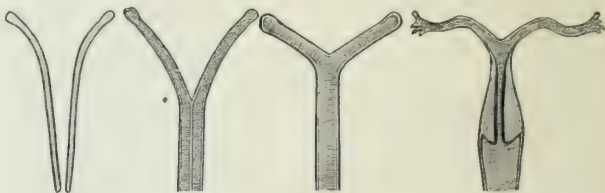


FIG. 1.—Development of the vagina, the uterus, and the Fallopian tubes from Müller's ducts.

arities of the so called fetal uterus. The cervix is larger than the body, and the mucous membrane of both is thrown into folds. After the sixth year the fundus and body attain considerable growth in comparison to the cervix, though it is nothing like the preponderance that occurs with puberty.

Anomalies of the womb depend upon an arrest of the ducts of Müller. The nature of the anomaly depends upon the time at which the development is arrested. If there is an arrest of fusion before the twelfth week, a greater or lesser doubling of the womb results. After the twelfth week, uterus bicornis or a septate womb results. If there is an arrest at a very early period there may be simply a rudimentary bundle of muscle and connective tissue fibres. The upper parts of the ducts of Müller form the hydatids of Morgagni, the middle the Fallopian tubes, and the lower the uterus and vagina. In uterus bicornis unicollis, the junction of the ducts is quite intimate below (Fig. 2). There is thus a single cervix, without dividing septum, but directly



FIG. 2.—Uterus bicornis unicollis.

above this the two uterine halves diverge sharply, as in our case.

CASE. Mrs. B., aged twenty-nine years, menses regular, mother of children, was sent to Doctor Wells's clinic, with a diagnosis of dead fetus of about three months, and a fibroid. Doctor Wells's diagnosis was, pregnancy of about four months, in one horn of a double uterus. An attempt was made by the house surgeon, under Doctor Wells's personal direction, to dilate the cervix and remove the fetus and placenta, with attention to the necessity for great gentleness. It was found impracticable without great danger to the cervix, to get enough dilatation to deliver the fetus.

*Read before New York Academy of Medicine, Section in Gynecology.

After a few attempts the uterus and cervix were packed with iodoform gauze to cause dilatation and maybe expulsion of the contents.

Next morning, the patient was in good condition, had regular pains for a few hours after recovering from the anesthetic, when suddenly the pains stopped. The gauze had been removed by the house surgeon at noon. About three o'clock in the afternoon Doctor Wells found her suffering from shock, temperature 99° F., pulse rapid. He directed



FIG. 3.—Gravid uterus bicornis unicollis.

the house surgeon to clean out the uterus, as he was called out of town. The patient was given ether, and a sound was passed into the uterus, full length, forceps were passed in, and the omentum brought down. The remains of the fetus was removed with a piece of placenta, and the uterus irrigated with strong iodine solution to cause contraction. The doctor said the iodine solution all returned.

I was called upon, in the absence of Doctor Wells, and told what had happened. The patient was in fair condition, but under the circumstances, I made up my mind to open the abdomen by a Pfannenstiel incision. I found a double uterus, one horn of which was enlarged by pregnancy, and a hole with ragged edges the size of a silver dollar, near the septum between the cornua. This septum was less than a quarter of an inch thick. A supravaginal hysterectomy was done and the abdomen closed, after removing the blood clots. The patient after a stormy convalescence for the first twenty-four hours, recovered.

Examination of the removed specimen showed uterus bicornis unicollis, with a ragged hole the size of a silver dollar near the septum between the two cornua. The gravid horn contained a piece of placenta two by four inches. The other horn was fully developed, as were the tubes and ovaries. The single cervical canal was dilated. The supravaginal part had contained the ovum and part of the mem-

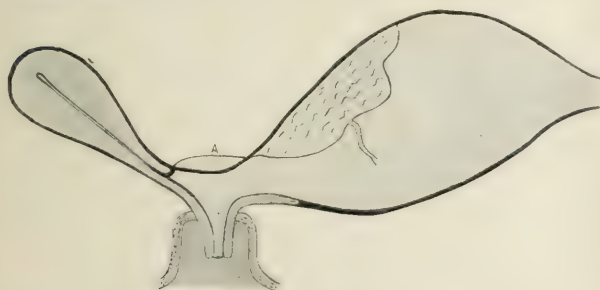


FIG. 4.—Rupture of uterus bicornis unicollis; a, lower point of rupture.

branes. We believe that after the uterus had been packed and ergot given, there were contractions which ruptured the uterus. The patient was in shock in the afternoon, when Doctor Wells saw her. The pains had stopped suddenly as they always do when the uterus ruptures.

Perforation of the uterus during abortion and curettage. Some years ago, a prominent gynecologist wrote to fifty surgeons throughout the country, asking them how many times they had perforated the uterus. All confessed to one or more time times. He brought up the subject in a discussion at

the New York Academy of Medicine, on the treatment of this condition. It was the consensus then, that unless there was injured intestine, a large hole in the uterus, sepsis, or poisonous fluid injected into the peritoneal cavity, the best treatment was to pack the uterus and wait; otherwise immediate laparotomy should be done and the damage repaired. If the uterus is badly injured, hysterectomy should be performed.

As there is no doubt that the uterus is often punctured during curettage I should like to bring about a discussion of the treatment. It may be that the thin wall opposite the cervix was injured or even perforated, before the patient entered the hospital, or when the attempt was made to clean out the uterus, though Doctor Wells does not think so, as all anomalies of the uterus are prone to rupture.

In our clinic, on account of the great danger of perforation, especially in incomplete abortion, nothing but ring forceps are used to clean out the uterus, and only saline is used for irrigation, unless we are sure the uterus has not been perforated.

Most perforations of the uterus occur just above the internal os, on the posterior wall (Fig. 4). It may be necessary to pack the uterus, open the posterior cul-de-sac, and pack it with gauze, walling off the perforated area. If there is a large hole, and if intestine or omentum has been brought down, open the abdomen. I consider the removal of the retained products of conception to be much more difficult and dangerous than most abdominal operations.

220 WEST NINETY-EIGHTH STREET.

THE HIGH COST OF ADVERTISING.

BY WILLIAM BRADY, M. D.,
Elmira, N. Y.

One of the established principles of business ethics is that it pays to advertise. It not only pays, it implies that you have confidence in the commodity you advertise, that you really believe the article you wish to sell is worth the price you ask. Perhaps you are the only one who believes in the value of the goods you are putting upon the market, but even so, the essential thing is that you shall have faith in your product, that you shall not be ashamed to ask and receive a fair return for your commodity. If you are honest and your product is a good one, you certainly need not be ashamed to take the money.

Tacitly, at least, the principle is now accepted in every kind and manner of endeavor, even the saving of souls. The laborer is worthy of his hire, whatever his work may be; if he does not receive full value for his work, the community suffers an injustice, and every individual is morally bound to keep his efficiency on a par with the average. When, for any reason, he fails to do so, there is inevitably an injury to the community.

Temporarily the laborer may waive the question of wages in the interest of the State or Nation—often does sacrifice a large and lucrative clientele or business in order to serve the community; but always, in the back of his mind, there is the comforting thought that out of the present immolation must come future returns in the shape of fame, experience, or other assurance of a larger patronage.

When we hear of a man voluntarily surrendering a bird in the hand in order to serve his fellow man, we cannot help peering cynically ahead toward the undergrowth to see just how many birds he may have descried twittering there in the unexplored jungle of the future.

Prestige is marketable under any circumstances. Honors bring the promise of something for a rainy day. Distinction of every character possesses a certain business value which can be appraised among a man's assets in futurities. These are all legitimate advertising which cannot fail to bring results.

In the course of the past few years a number of courageous souls have ventured to give voice to some startling thoughts which most of us had long nurtured in our subconsciousness, fearing to confess a mercenary spirit. One word has led to another, more and more daring opinions have found expression, and now at last the idea that a good doctor can be a good business man—must be a good business man—meets with only the feeble academic opposition of those whose circumstances have never compelled them to be either. Today we may advocate the material success of the medical practitioner, the family physician, without endangering our professional standing or risking the good will of our colleagues. The idea that a doctor should shoulder the bulk of the charity burdens of his community is fortunately losing its sacredness, and the idea that the doctor is worthy of his hire is rapidly coming to the front. This latter idea must prove a far better one; put in practice, it must prove better for the doctor and for the community.

For the many years of self sacrifice the medical profession as a whole has contributed to the common welfare we receive in return empty, if eloquent gratitude; our legislatures scorn to protect us in vital matters of policy touching upon the regulation of medical practice; the great charitable bodies place the narrowest restrictions upon our contributed services and condescendingly formulate humiliating rules and laws for our guidance; lay hospital boards order us about like so many pawns in our voluntary hospital duties; the press ridicules our presumption and misrepresents our ideals; the courts interpret and dispose of our rights as they think meet. Slavishly, humbly, hypocritically, selfishly, we submit to these indignities from all sides, because we are not businesslike.

When an itinerant merchant comes to town and starts "doing" people without complying with the prescribed formalities, the chamber of commerce or the business men's association takes cognizance of the stranger's offence, the machinery of the law is set in motion, and the offender is brought up short by the police. When an unlicensed charlatan arrives in town and buys a half page in the papers, we of the legitimate profession do nothing. What's the use? What can we do? If we protest, the district attorney invites us in his crisp, businesslike way to produce our evidence. If we employ detectives and obtain the necessary evidence for prosecution, the court impatiently hears our complaint, and the jury concludes we are a jealous, carping, unreasonable lot, and allows the culprit to go free on a technicality or on plain sympathy. A reputable doctor in court gets small comfort; a business man commands a

respectful hearing. Why? Because we are not businesslike—we are still ashamed to take the money.

But what has that to do with advertising, you will ask. And besides, doctors do not advertise, do they?

Oh, yes, we advertise. We are the greatest little advertisers of them all—only we pay too much for our advertising. We do not apply good business sense in our expenditure for advertising; we do not seem to realize values, and that is why our profession is generally held in contempt by men of the world, all sentimental and after dinner buncombe aside. We know how to get the publicity, all right—we are busy as bees at that every day we practise; we work our advertising genius overtime; but we have not the proper knowledge or ability or courage to cash in on the returns. What we need is instruction in efficiency, that is, we need it as a profession. We are suffering from dry rot, pernicious auto-intoxication, ingrowing medical ethics. We are afraid of the public and of each other.

Spasmodically we get together and bewail our unhappy condition, placing the blame everywhere but on the place where it belongs—on ourselves. The increasing difficulties and restrictions and the decreasing emoluments of practice give us great concern, as we talk over the fee bill like a lot of desperate thieves, each suspicious of the other's duplicity! A new schedule is drawn up, and adopted unanimously, though this one and that one plainly do not intend to abide by the revision, because their patients would not stand for the change just now. The newspapers probably print an editorial article or two on the action of the medical society, pointing out that few of the members will adhere to the new schedule of fees. To be sure, some would not—and there you have the disease diagnosed. When the merchants are compelled to raise the price of a commodity, do they hesitate in fear that customers would not stand for it? No. They say they are sorry, of course, that they are compelled to soak the public, but circumstances, etc.—and the public pays or goes without.

In almost every move we make we advertise ourselves and our business; such advertising costs nothing. But when we serve without compensation on a hospital or dispensary staff, when we attend the poor as a matter of personal charity, when we fight off epidemics, individually or collectively—then we pay an extortionate price for the advertising these activities entail. You may say what you will about honor, prestige, charity, and the like, the chief motive which prompts us to do these things is selfish—advertising. Your struggling young doctor seizes the opportunity to get a place on a hospital staff simply for the prestige he hopes the place will carry, for the returns which will come to him indirectly through his hospital connections. Pathetic—that's the word to describe this eagerness for a chance to get a boost forward in the race for material success. But what a tremendous price he pays for his boost! Ready, indeed, to give the dear public his very life blood, eager to shower precious gifts on the public, all for the advertising. We who have experienced these things, know; we who have paid the price, realize the outrageous cost of legitimate medical advertising.

There is but one remedy possible, and that is coming just as sure as medical science is growing. We must make the public foot the bills for all these valuable services. We must stand fairly upon the platform that the laborer is quite as worthy of his hire in the guise of a doctor as he is in the guise of a professional charity worker or a lawyer or a merchant or a teacher. It is our plain moral duty to oppose with every fibre of our being that unjust idea that the doctor alone, of all the community, is bound to shoulder the burden of charity for which the community alone is responsible.

The sweet old story of the beloved physician (not specialist or surgeon, mark you, but old family doctor) toiling ceaselessly year in and year out, spending his substance in ministering to the poor without hope of recompense in this world (building a home for himself in the next, perhaps), is quite old enough to be filed away where it belongs with the companion piece about the old timer who could tell by second sight or a glance at the tongue just how bad a patient's liver was. Down in our heart we do not want to follow these bad precedents if we can help it. We want to be successful, efficient, independent, and respected, as a good physician should be, even though we may never play the tragic role in such romantic tales. And that being true, we cannot afford to spend our substance doing work which the community ought to hire done; in fact, we don't believe the community deserves so much charity; it is accountable for the results of its own wrongs, certainly the legitimate medical profession is not. Medicine is advancing so rapidly that we cannot hope to keep step with it and maintain our efficiency unless we have leisure, means, and opportunity to study, and these we must secure from our practice.

If our fees for services rendered those who can pay, were commensurate with the value of the services, as are the fees of specialists and surgeons, perhaps we could afford to donate time and labor to the community; but they are not, and only by making the community pay reasonably for this time and labor can we make the hire worthy of the laborer.

The average fee bill is nothing less than a crying shame upon a liberal profession; it betrays our lack of appreciation of our own value. Even the osteopath displays a better opinion of his own worth. We are progressive in everything but business, and the fault with our business is that our advertising is costing too high a price. For some reason of which we ought to be ashamed—perhaps the lies we or our medical predecessors have lived—we have not got the moral courage to demand a fair return for services rendered, we family doctors. The specialists and the surgeons have learned their lesson, and the result shows itself in their efficiency, but we seem to be diffident and abashed when it comes to naming a fee. If you doubt it, glance over the average fee bill and compare the figures there given with the customary fees of a lawyer or, sad to say, even a plumber. Our prices are ridiculously low, considering the vast sum we pay for advertising. What is the reason? Are we fakirs?

No, the fakir is sure to charge a stiff price for that which he sells. We are not faking, we are just sleeping. When we awake, if we ever do before the legislature makes the practice of medicine a mis-

demeanor in this State, perhaps we shall discover that the public never values a laborer above his hire.

1008 LAKE STREET.

A COMPARISON OF AMERICAN AND EUROPEAN METHODS.*

BY JOSEPH H. SCHRUP, M. D.,
Dubuque.

European methods, as a whole, do not surpass American. In certain departments they are no doubt superior, but in other ways we surpass them. In this paper I shall mention no specific American advances, but dwell on European only, as space does not permit otherwise; and what I consider to be the European advances shall be given in a general way only, for the same reasons. I was in Europe during June, July, and August, 1914.

In general, there is no decided difference, except in the language, and in the absorption of work it often seems as if one were making the rounds of the clinics of one's own country. Perhaps one would gain as much if one covered the same amount of ground and gave as much time to our own important clinics, with the exception that a change of scene does one good. It is also instructive to make the rounds in a foreign land for the good reason that we learn it is only distance that lends enchantment and that we are foolish to take off our hats to any but our own country.

We get many ideas from Europe, it is true, and some even from India and the Orient; but while we are appropriating such, they in their turn are effecting reprisals; all of which, no doubt, is better than bigotry and scientific war; but here again, as Professor Alexis Thompson, of Edinburgh, remarked in one of his clinics I attended, while he was showing us a new transverse abdominal incision in the skin fold between the two anterior superior iliac spines, a fold which, he had learned from Professor O. Lanz, of Amsterdam, had been observed to be ever present in the best ancient and modern statues: "The constant interchange of ideas via medical journals, visits, etc., so standardizes methods internationally that it does away with any characteristic national surgery; which, while it may be more fortunate for the patients, it, on the other hand, makes our visits much less interesting." Most all foreign clinicians speak English well, and there are hardly any of note who have not visited American clinics one or more times—some even eight and ten times. So you see our acquaintance is not so one sided as most of us think.

In my opinion, the general anesthetics of the Continent were very poor, chloroform being more used than ether—no drop method of ether at all. In several clinics that I attended even the visitors noticed the absence of respiration long before the anesthetist was aware of any danger, but fortunately the patient in each case was eventually resuscitated. The poor general anesthetics may be the result of the perfection of but one side of anesthesia, i. e., the local, for they seem to do wonders with it. In England and Scotland they give fewer local and bet-

*Read at the annual meeting of the Dubuque County Medical Society, Dubuque, Ia., September 29, 1914.

ter general anesthesia. All goitres, much plastic surgery, some amputations, and even prostate enucleations are done with a 0.5 to one per cent. novocaine solution by the combined deep and surface block methods. The removal of the prostate by Professor Wilms, of Heidelberg, by this means was intensely interesting. He has a "lateral incision one finger operation," and ten minutes before operation injects the pudic nerve, both poles of the prostate on each side, and also the deep and superficial structures while withdrawing the specially long needles. He directs the point of the needle by a finger in the rectum. I also saw him do several Kraske operations with a spinal anesthetic consisting of three c. c. of a five per cent. novocaine solution. The patient would talk during the operation and laughingly inquire the cause of the jolting occasioned by the mallet and chisel.

The asepsis practised is variable. It ranges from a collar and vest sans head and face protection

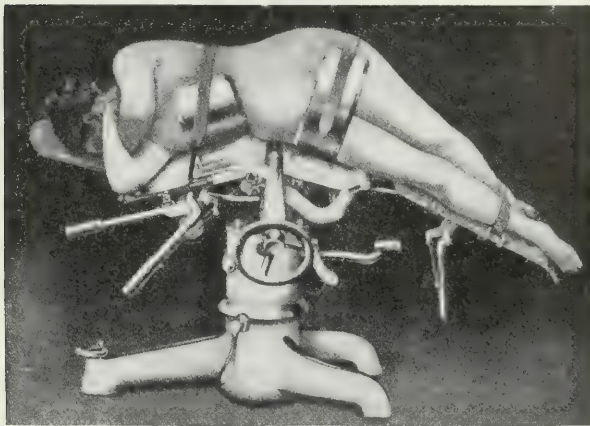


FIG.—One example of an advance over the American table (not the best), showing lateral tilted position for kidney operation.

method, of Hamburg and Berlin, to the almost theatrical performances of Bastinelli and Alexandre in Italy, of which I heard much. Refugees from the latter place say they have "talking tables" and change the canvas on the floor after each operation and that the latter procedure works as smoothly as do the tables. Special tables that give universal positions and supports are also to be seen in Switzerland and southern Germany. Rubber boots of some form are universally used by all operators and their assistants both on the Continent and in the British Isles, and in many places the visiting doctors are also obliged to put them on over their shoes.

The iodine preparation of the abdomen, as in this country, is almost universally used. The antiquated silk ligature and suture is still used in many places, to the almost, if not total, exclusion of catgut. I saw no metal sutures used anywhere; neither did I see any of the other refinements of suture material, as kangaroo tendon and horsehair. Rubber gloves are used in almost all the clinics, and in some places, as Kocher's at Berne, cotton gloves are drawn over the rubber. Some surgeons, however, constituted like the users of silk, still use the bare hands.

As regards hand preparations, asepsis is used

more than antiseptis, but the latter in some places is still depended upon almost wholly. Mercury bichloride is the most common antiseptic, but mercury cyanide and oxycyanide also are considered reliable. A good instance of faith in the cyanide is its exclusive use in the famous orthopedic clinics of Jones, of Liverpool, whose remarkable success, however, I should say, depends more upon his strict aseptic rather than antiseptic technic. In connection herewith I wish to call attention to drop bottle arrangements of sterile water and alcohol for the hands. The little arrangement does away with the usual basins in an operating room, and besides has the advantage of always being clean. I saw it in many clinics of central Germany, notably Kocher's. One simply turns the stoppers off and on with a sterile finger cot, rinsing the hands in a running fluid. Another commendable performance is the rolling of a portable bed into the operating room, chart and all, and everything is arranged under the surgeon's eye just as he wishes the patient to have it in his room.

I heard comparatively little of serum therapy. Weiblich, of Vienna, in charge of Wertheim's obstetrical clinic, uses pituitrin for inertia *only* in the second stage of labor, when everything else is normal, and then only when it is evident something radical must be done. He condemns the "twilight sleep" of Krönig and Gauss, of Freiburg. He says it often causes asphyxia of the child. Krönig, himself, at all his clinics, takes occasion to deny having had any complicity whatever in its exploitation.

Lane, of London, is at present so completely silenced by the bombardment of critics that he simply has his sister (his head nurse) and the patient give all the testimonials; while he goes on taking out colon after colon, apparently oblivious to any other pathological condition, and regardless of the criticism of the benches, surgical congresses, etc. I saw a Jackson's membrane operation by Dr. Harold Stiles, of Edinburgh; the diagnosis chronic appendicitis. The cecum and transverse colon, but not the ascending colon, could be brought outside of the wound. After adhesions of the outer side of the ascending colon were loosened, it came out of the wound as easily as the rest. A good instance of advanced plastic intestinal surgery I saw at the clinics of Doctor Sauerbruch, of Zurich. A loop of jejunum was isolated, and when its contents should become sterile, an anastomosis of a stenosed esophagus was to be made with it. The three layer operation of gastroenterostomy is favored in all Vienna clinics.

The barbarous double oophorectomy is still practised very extensively in certain quarters, notably in Vienna. America, I am pleased to say, passed through that stage long ago.

I did not see any French surgery, principally because I could not speak the language, but also because it suddenly became very unpleasant in that part of the world; but from what I heard, it must be a fact that they do wear large thick gloves and perform brilliant and speedy work as well.

It seems to me that orthopedic surgery is more extensively practised in Europe, especially in England and Scotland, than in the United States. Mr. Robert Jones, of Liverpool, does nice work in this

line. I never saw or heard of so many varieties of tendon transplantations as he showed us one morning and afternoon in his clinics. A point of interest is the way they drive nails through the skin for the immobilization of bones, leaving the heads outside, so that the nails can be withdrawn a few weeks later. McEwen, of Glasgow, has upset the theory of bone growth and regeneration. His theories and proofs that the periosteum does not take part in bony growth, i. e., is not osteogenetic, are epoch making. His dog bones and deer antlers are most convincing. He also contends that bony growth is chiefly diaphyseal and shows why the whole bone becomes involved in primary infections of the bone in childhood, by demonstrations of specimens in which the epiphyseal line has not closed.

Doctor Sauerbruch, of Zurich, and his assistants have done much rib resection work for tuberculous cavities, with good results, as shown by postoperative cases and serial x ray plates. The ribs are resected posteriorly from the second to the tenth, which allows the chest wall to collapse over the cavity, the resulting rest and compression giving the results. The much read about vacuum chamber for chest operations, seen in some hospitals, is very simple and practicable, and ought to be a part of every hospital equipment. The quartz lamp (artificial sunlight) has some vogue for treating phthisis of children.

X ray diagnosis is in an advanced stage of development. Fluoroscopy on an extensive scale is practised in many places, and in Vienna one can get special courses. A skiagraph by means of double plates, film sides apposed, in order to accentuate the light and shadow, was new to me. It is another way of getting the benefit of an intensifying screen. Aluminum and even platinum plates, used to cut off the superficial (burning) x rays, have given a new impetus, and better results, in x ray treatments, especially for the deep lesions. I heard little about massive raying.

Indigocarmin, as a functional kidney test, is given preference over phenolphthalein by such experts as Joseph, of Berlin, Zuckerkandl, of Vienna, and Thompson Walker, of London. It is injected, twenty c. c. of a four per cent. solution, into what seems to be the ischiorectal space (really the inner edge of the heavy buttock muscles) and should make its appearance in the urine of normal kidneys in from five to twenty minutes. Collargol, in ten to twelve per cent. solution, and metal ureteral catheters are used almost exclusively in kidney diagnosis and medical treatment. The new Nitze and Wolff cystoscopes are the latest and best achievements in their line. They are equipped with a direct system of lenses, called the Zeiss-Kollmorgan achromatic. The field is wonderfully clear compared to that of the usual cystoscopes on the market.

Water beds for immersion of a suppurating limb or even the body of a patient in water for days at a time, are frequently employed, notably in Hamburg, where they have a room with seven such beds in a hospital of 2,500 capacity. This same hospital, called the Eppendorf, consists of sixty pavilions with a capacity of forty beds each, each pavilion on a separate acre of ground; surely an ideal arrangement from a hygienic point of view.

The value of a large medical centre like Vienna, compared to others with a similar amount of material, is in the perfect system and arrangement for postgraduate work on a large scale. The clinicians and demonstrators make it a business (a compensation business) to supply the demands of visitors, whereas this same energy is expended by similar groups in other cities of the same size for the benefit of medical schools and students. In Vienna you can get anything you like, at any time you want it; and for the benefit of those who have never been there I will add that it is, in great part, due to the good offices of the Vienna branch of the American Medical Association. They have but recently moved into new quarters consisting of five handsomely furnished rooms.

120 MAIN STREET

OHIO STATE UNIVERSITY

JOINT TUBERCULOSIS.*

BY LEONARD W. ELY, M. D.,

704 Francisco

Before I take up the subject of my communication, permit me to say a few words as to what we are starting out to do in the orthopedic department at Stanford. A year ago this was put on a regular, academic basis as a special department, the first one in the country. We are met almost at the outset of our study of diseases of the bones and joints by the lack of absolute knowledge on a firm ground of fact, upon which to found reasonable treatment of bone or joint disease. In our study of these diseases, we find a mass of theory, a collection of personal opinions, given out as a rule with didactic precision. When we come to trace this theory and opinion to its source, we find that it has no foundation of fact. We have started out in a small way, without any special belief, without any theories binding us, to establish as far as we can a certain amount of facts upon which we can depend for guidance.

We know hardly the simplest thing. We know almost nothing about the bone marrow, one of the most complicated structures and one of the most active tissues in the body. It is involved principally in almost every bone and joint disease, and yet all the functions of the bone marrow, its histology and its pathology are largely a matter of guesswork. We might say the same in regard to every tissue that we meet in bone and joint disease, of the reaction of cartilage to disease, of its powers of repair of even the simplest thing, such as the formation of bone. We have believed always that bone is a mesoblastic tissue; now we hear on recent authority that it is an epiblastic tissue. We have started at the bottom, we are endeavoring to collect an abundant material of many specimens of bone marrow from routine autopsies, to submit them to an exhaustive examination, to compare the bone marrow of the human being with that of animals, to ascertain its reaction by cutting fresh specimens of bones and joints in order to find the beginnings of disease. It is impossible to understand a pathological process by observing its terminal stages.

*Address delivered before the St. Louis, Mo., County Medical Society, November 7, 1914.

We never could understand, for instance, tuberculosis of the lungs if we made the basis of our knowledge the examination of advanced cases of pulmonary tuberculosis; yet practically this is what we have tried to do in bone and joint disease. Unless the disease has progressed far enough to work a great amount of destruction in the bone, it is never brought to our knowledge. We have been surprised to find, on cutting up joints in routine autopsies, in a fair proportion of the cases of apparently normal bones, the beginning of a pathological process.

This study of bone and joint tuberculosis was begun some six or eight years ago. We accumulated bones and joints that had been removed for tuberculosis, and submitted them to exhaustive examination. We had not gone far before we found that many of the things we had accepted as true at the start, rested on a slender basis. The joints were collected wherever we could find them, whoever the operator may have been. The patients were traced if possible after the operation, the history of the case was summarized and the joint was then submitted to a thorough examination, macroscopic and microscopic.

We will lay down in the first place the definition of joint tuberculosis. It is the reaction of the tissues of the joint, or of some of them, to the presence of the tubercle bacilli. The cause is the tubercle bacillus; beyond this, there is practically no agreement. The influence of trauma is variously estimated. According to some, trauma plays a very important part in the causation; according to others, it is practically negligible. It is possible that a trauma may affect the soft joint structures. Fracture probably never has any causative relation, and one can appreciate readily that nothing but a fracture could play any causative role in the cases starting in the bone. No "strain" could affect the bone marrow, and it is a strain that is usually supposed to be a contributing cause of joint tuberculosis. In the synovial membrane, however, strain possibly plays some part.

Infectious diseases have a certain definite role. Measles comes first as a predisposing cause, then whooping cough, scarlet fever, and pneumonia. The causative role of the infectious diseases has been supposed to be due to lowered resistance, but the diseases which lower the resistance of the patient the most seriously are not those that are followed by joint tuberculosis. Probably we shall find in this great chemical laboratory, this marrow, certain routine changes in infectious disease which prepare the way for the lodgement of the tubercle bacillus, not by lowering the resistance, but by causing such changes in the marrow as to make it vulnerable to the tubercle bacillus.

The disease starts in the synovial membrane, or in the marrow of the bone. It has been maintained by Nichols, of Boston, that all cases of joint tuberculosis start in the bone marrow. Fraser, of Edinburgh, on the other hand, maintains that they are all primarily synovial. Our examination teaches us that either tissue may be the starting point. In children, usually the bone marrow is the starting place. In two or three of our specimens, the start

of the process in the synovial membrane could be demonstrated almost beyond peradventure. We find also that synovial membranes all over the body are liable to infection; tuberculous infection of the tendon sheaths, for instance, is well known. The disease in the marrow probably starts as a solitary tubercle in the bone end, that is, by the formation of a primary tubercle which tends to extend at its borders and to break down at its centre, as does tuberculosis in other regions of the body. Nature, on her part, begins almost synchronously with the formation of the tubercle, to wall it in with fibrous tissue and with bone. At times, extension is going on in one part of the bone and repair in another; at times, the process of repair is practically in abeyance—there is practically no resistance, the disease spreads throughout the marrow, and destroys the bone very rapidly. Various names have been given to these different forms of tuberculosis. *Caries sicca*, the dry form, is characterized by a rather slow spread and a rather dry course. Joint fungus is characterized by the production of much new, soft granulation tissue, with very little fibrous tissue. These divisions are purely artificial. The distinction is not a sharp one, and such a classification tends to confusion in what is one pathological process varying in severity and extent.

As the disease spreads in the marrow, it cuts off the nutrition of the bone trabeculae; this is where joint tuberculosis is different from other forms of tuberculosis. This drawing from a microscopical preparation shows the tuberculous tissue running through the marrow, with here and there small areas of cheesy degeneration. The bone is dead, and there are very few trabeculae left. The bone may be killed rapidly in large pieces, like the sequestra of acute pus osteomyelitis, but, as a rule, the process is slower, and the bone is killed in smaller pieces, giving rise to the characteristic "bone sand" of joint tuberculosis. Rarefying osteitis, so often described, may be accomplished by giant cells, supposed to be eating out the bone. This is one method of rarefaction, but in many cases these large osteoblasts are not to be seen, and the bone seems to be killed largely by direct pressure of the tuberculous granulations in the marrow.

When the disease reaches the cartilage from the marrow of the bone end, it destroys the nutrition of the cartilage, and breaks through in some one spot, pressing through from the marrow below. Very frequently the disease spreads along beneath the cartilage, and gains the joint at its circumference. Again, the tuberculous granulations may spread out under the surface of the cartilage and throw off the entire cartilage like a flake, or a leaf. When the morbid process reaches the joint cavity, it ceases to be exclusively a tuberculous osteitis and becomes a tuberculous arthritis. The synovial membrane proliferates, becomes thickened and is thrown into folds. Instead of a single layer of connective tissue cells it becomes a dense, thickened membrane, or, if the disease is slower in its course, the synovial membrane becomes a dense fibrous tissue lining the joint. The acute, rapidly progressive cases are diffuse; there are no encapsulated, no discrete tubercles, but a general diffuse tuberculous granulation

tissue. In the slow cases there is a definite formation of tubercles and a definite encapsulation.

Upward, the disease may extend as far as the spongy bone extends; downward, it may go to the cartilage; outward, it may go to the under surface of the periosteum and may exist in the inner layer of the periosteum, possibly bursting through here and reaching the surface without communicating with the joint at all. When it has reached the joint, the entire joint may become tuberculous and the disease may spread in at the margin of the cartilage and involve the other bone; but never, under any circumstances, can it perforate the cartilage from the joint side. A normal cartilage is an absolute barrier to the spread of the disease, and as the cartilage over the end of the bone derives its nutrition from the marrow under it, as long as this marrow is not involved in the process the cartilage remains sound and an absolute protection to its subjacent marrow. The perforation, in other words, is never by the deposition of fibrin and a subsequent erosion of the cartilage by this fibrin, but always by a tuberculous myelitis below the cartilage and the perforation of the cartilage from below.

The disease may exist indefinitely in the synovial membrane if it starts in the synovial membrane, and may never involve the bone at all. In many cases, after the disease has existed for years, when the joint is opened, the cartilages will be found smooth and glistening, and the bone under them perfectly normal.

The process is much the same when the disease starts in the synovial membrane. It may make its way into either bone or into both; again, it may be confined in certain portions of the synovial membrane and not involve the entire structure, so that if a piece is taken out for laboratory examination, it may not contain tubercles, although the disease is tuberculous. The membrane itself may have a certain amount of resistance. The formation of fibrous tissue may limit the spread of the disease; hence the unreliability of a single specimen removed from the joint for diagnosis.

One of the favorite situations for the disease is in a line directly under the cartilage. It seems to travel along there by preference. It is never discrete, never distinctly encapsulated in the bone, so that one can incise and pick it out, as one would a wen. Its limits can never be known by external examination, by x ray, or in any other way. The x ray picture is more or less characteristic. It shows a rarefaction of the bone, as one would expect—a thinning and an erosion of the cartilage. This x ray picture is not peculiar to tuberculosis; it is characteristic of a certain type of disease, of which tuberculosis is only one member. Gonorrheal, syphilitic, typhoid arthritis, pneumococcic arthritis, so called rheumatoid arthritis, all have practically the same x ray pictures.

The question arises, why tuberculosis always affects the ends of the bones and never the shafts, and this question has excited a great deal of discussion. It has been maintained that liability to injury is the cause. Liability to injury is no cause of tuberculosis. If one injured a muscle or if one injured fatty tissues, one would not expect tuberculosis to

occur, and it is a matter of note that those joints where tuberculosis is most frequent are not the joints most liable to injury. A lack of anastomosis of the terminal arteries about the epiphyseal line has been advanced as the cause, but lack of anastomosis is also no cause of tuberculosis. Tuberculosis, for instance, is rare in the brain—it occurs sometimes in the membranes—and yet the cerebral arteries are end arteries. Lack of anastomosis is nowhere else in the body advanced as a cause of tuberculosis. Furthermore this lack of anastomosis does not exist in adults, nor is there a lack of anastomosis in the synovial membrane where the disease often starts. Presupposing a lack of anastomosis as the cause, we could not explain why the disease should travel merely as far as the spongy bone extends and not up into the shaft. The disease practically never exists in the shaft. Once in a while, it is found in the shafts of children's bones. A free blood supply in growing bone also has been said to be the cause, but a free blood supply is no cause of tuberculosis; a lack of blood supply is supposed to be more of a predisposing cause than a free blood supply. Congestion following injury has been advanced as a cause for joint tuberculosis, but congestion (Bier treatment) has been advocated as a means of cure. Rokitsky's observation that congestion in tissues precluded tuberculosis is a direct argument against the causative role of congestion.

Almost any disease process in the body exhibits a predilection for certain tissues, for certain structures, and very often is found nowhere else but in these tissues. For instance, the gonococcus affects by preference certain kinds of mucous membrane, certain kinds of epithelial cells. There are only two tissues which are ever involved in uncomplicated tuberculosis of the joints, and those are the synovial membrane and the lymphoid marrow in the bone. Where this lymphoid marrow exists in bone throughout the body, there we find the bone vulnerable to tuberculous infection; and where this lymphoid marrow does not exist, there we find the bone immune to tuberculosis. Lymphoid marrow is much more abundant in the ends of children's bones than it is in those of adults; therefore, we find that the disease is more frequent in children than in adults. We find, further, that if this lymphoid marrow disappears from the regions of the joints, tuberculosis ceases to exist there. It has been a common observation that in operations on these tuberculous joints, a complete removal of all the infected tissue was not necessary, so long as the joint was completely ankylosed, and secondary infection was prevented. After a complete ankylosis the lymphoid marrow disappears, the synovial membrane disappears and is replaced by ordinary fibrous tissue, the bone becomes dense bone. Union at first is fibrous and then bony, and eventually a canal is often established through the site of the former joint, and the bones form one shaft instead of a joint.

The importance of these facts is hard to overestimate. All the methods of cure which have survived are based upon this fact—no function, no lymphoid marrow and synovia; no lymphoid marrow and synovia, no tuberculosis. The tuberculosis cannot exist in the region of the joint where these

tissues are not. Since this theory was evolved, it has never met with any really serious opposition until Fraser, of Edinburgh, who has done probably the most remarkable pathological work in bone tuberculosis that has ever been done, made the categorical statement that red marrow was immune to tuberculous infection, that the disease was always primarily synovial, and that the presence of tuberculosis in the synovial membrane caused the marrow in that vicinity to lose its lymphoid characteristics, to become first fatty and then myxomatous marrow. Then the disease might extend into the bone, and not until then. He said further that pure cultures of tubercle bacilli injected into the red marrow of rabbit's bone (rabbit's bone has red marrow throughout, in the shafts and in the ends), would not grow and could not grow.

A statement made on such authority demands attention. During the past summer we have devoted ourselves to finding out the truth of the matter. Dr. Jean Oliver and I have been tracing the disease by injecting pure cultures of tubercle bacilli into the red marrow of rabbit's bone shafts, vitally stained by the previous injection of about twenty c. c. of trypan blue into the ear. At intervals of a week or two the rabbits were killed. Our rabbits showed that Mr. Fraser is wrong. We found again and again that after a few days tuberculosis could be demonstrated in the marrow.

I have in gelatin four rabbit's tibiae; a normal tibia, a tibia affected above and below, a tibia with a solitary tubercle at the end of the bone, and a tibia involved practically throughout its entire length. Upon the presence, then, of red marrow and synovial membrane depends the occurrence of tuberculosis in joints.

The symptomatology of the disease is comparatively simple—pain, disturbance of function, muscular spasm, muscular atrophy, sometimes swelling, sometimes fluid, sometimes no fluid. Often the joint is swollen; by production of fibrous tissue, often it is shrunken. There may be more or less deformity. This symptomatology is common, as the x ray pictures are common, to that group of diseases which includes gonorrhea, syphilis, pneumococcic, "rheumatoid" joints, and others. The pathological process at the bottom of all these is the same, the x ray picture may be the same, the symptomatology is practically the same. Herein lies the extreme difficulty or the impossibility of making a diagnosis, and, as a matter of fact, the proportion of erroneous diagnoses appears from our examination of these laboratory specimens to be very high. The diagnosis, in other words, cannot be made upon inspection of the joint itself, nor upon the x ray picture, nor is it, if one thinks for a moment, practically ever attempted. If a patient presents himself with a diseased joint, we immediately sit down and begin to question him about his past history, as to the onset of the disease, as to the occurrence of Neisserian or luetic infection, as to the condition of any other joints, as to himself, and every symptom about his body. Then we proceed to make a thorough physical examination of the patient himself. In other words, we do not attempt to make a diagnosis from the joint itself, but by questioning the patient and by examining him, we make the diagnosis or an

attempt at diagnosis from examination of the rest of his body.

If we find a typically rarefied bone, a damaged cartilage, and a thickening of the bone of the shaft, and if we get a distinct history of lues, we say that the disease is probably luetic. If we find that the patient has pulmonary disease, that the disease is slow in its onset, that only one joint is involved, we say that he is tuberculous; but we keep our minds open to the possibility of error, and refuse absolutely to accept the statements of any man as to any method of treatment which is not based upon some tangible proof of his diagnosis. It is this error that has carried us so far astray in the past, and which is a great danger in the future, namely, because a joint presents symptoms of pain, stiffness, swelling, muscular atrophy, and limitation of motion, that therefore it is tuberculous. We require absolute proof. Even a tuberculin reaction is not a demonstration of the tuberculous nature of the joint. It is necessary, either by the animal test or by a positive examination of a piece of tissue from the joint, to establish on satisfactory grounds any really reliable method of treatment. Until this is done we must maintain an attitude of skepticism as to exaggerated assertions by any man. An absolute diagnosis cannot be made clinically.

TREATMENT.

In the treatment more confusion probably exists than in any other part of the subject. Opinions differ as to the pathology, but in treatment they differ so widely that there is practically no meeting ground. One authority recommends radical treatment, another conservative; one man will amputate as soon as he considers himself reasonably sure of his diagnosis. He will make his diagnosis clinically, and amputate the limb on the suspicion of tuberculosis. The gamut has been run on every conceivable substance for injection—carbolic acid, iodine, iodoform, bichloride of mercury, sulphate of zinc, formalin. Hot air has been tried, the Bier treatment, sea air, mountain air, external applications, the actual cautery, strapping, immobilization, traction, sunlight, vaccines, Röntgen rays. Each man lays claim to remarkable results, and bases his claim, as a rule, upon his clinical opinion.

Is it possible with our present state of knowledge to formulate any definite rules? I think it is. We have not discovered any substance which we can use directly to kill the tubercle bacillus, but if we can cause the disappearance of the only two tissues in the joint that are ever subject to infection, we shall be able to cure the disease. The presence of lymphoid marrow and synovial membrane is dependent upon function. You might say that the presence of function also is dependent upon these two tissues. If we deprive the joint of function, we cause these tissues to disappear, and if we cause these two tissues to disappear, we cure the disease. In children it has been found that by conservative measures continued for a long period we can often cure the disease with a reasonable amount of function, though it may break out at a later time. We have no means either in children of causing these two tissues to disappear, for the lymphoid marrow exists in the shafts of children's bones as well as

in the extremities. Again, radical treatment causes a stoppage of growth at the region of the joint, with a result of crippling deformity and also very often with distortions, bendings, contractures, which are almost impossible to correct or to prevent. Therefore, we will lay down as a rule for children conservative treatment, depriving the joint of function in any way which we think best.

In adults the case is different. Conservative treatment seldom if ever cures the disease after the bone is once affected; possibly the patient may recover with good function if the disease is confined to the synovial membrane, and some authorities maintain that they can cure it by conservative measures. Therefore, taking into consideration the uncertainty of our diagnosis, it is well for a while to try conservative measures, but never to persist in them for very long. Conservative treatment at the best in ninety-nine cases out of a hundred results, in the adult, in a stiffened joint after some five or ten years. This result can be obtained by radical measures in as many months. Therefore, treatment in adults is radical as soon as the positive diagnosis is made. We proceed with one object in view, namely, to deprive the joint of function; we do not attempt to eradicate the disease. We have no means of knowing how far it has extended into the bone. We simply deprive the joint of function, and when we have deprived the joint of function by resection, we know that the disease can no longer exist in that locality. It dies, practically, you might say, of starvation.

There is a corollary. We have found the simple disease to be limited to the synovial membrane and to the lymphoid marrow of the bone end; when a secondary pus infection is added, the limits exist no longer. The disease then can spread to any extent, and can maintain itself indefinitely even in tissues that previously were immune. Therefore, our second rule is to avoid secondary infection by every means in our power, never to undertake any drainage operations in these joints, never to scrape and pack, never to resect and leave the wound open; but simply to resect the joint and to obtain union of the wound by first intention, confident of the fact that then tuberculosis can exist no more in that locality. It is not pleasant when a patient comes for treatment to tell him that there is only one method of cure, and that is to stiffen his joint. It is a difficult thing, as a rule, to obtain consent for the operation; but with our present knowledge it is the very best we can offer, and we shall not improve our position by trying every thing that is brought up without some definite reason, some plan, some idea of treatment beside what its originator believes to be correct. We will never under any circumstances undertake an arthroplastic operation in these cases. This tuberculosis may exist for years unnoticed in the bone or in the cavity of the joint enclosed in fibrous tissue, and an arthroplastic operation, by providing again a joint and undoing the work of Nature in stiffening the joint, may simply lead to a recrudescence of the disease. Never under any circumstances move these joints passively to break up the old adhesion. If they are stiff, leave them stiff; if they are not stiff, make them stiff.

LANE HOSPITAL.

THE RELATION OF PHYSICIANS TO THE PUBLIC SCHOOL SYSTEM.*

BY IRA S. WILE, M. D.,
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Progress in the development of specialties has not eliminated the family practitioner, who still represents medicine in the eyes of the public. Needless to say, the bulk of medical work is still performed by regular physicians, while the specialists in the numerous branches of medicine and surgery occupy a distinguished place in diagnosis and relief work. A large proportion of general practitioners are perfecting themselves in specific forms of work through experience in hospitals and clinics, while in their private practice they are responsible for a general oversight of the physical health of men, women, and children.

The relation of physicians to the public schools is exceedingly important. Were more adequate attention given to the medical problems of infancy and early childhood, there would be a larger number of children entering into the public schools from the ages of five to eight years in a physical condition capable of absorbing the teaching available at school. Late entrance to school is a cause of retardation and elimination, and so far as this is dependent upon disease in the preschool age it is wholly within the province of family physicians.

During infancy and early childhood, the relation of the physician to the family is exceedingly close, and his opportunity for decreasing morbidity is greater than during any other period of child life. Much of the morbidity of early infancy leads to weakened constitutions, or physical disturbances such as rickets, scurvy, spinal defects, defects of eyesight and hearing, which have a pronounced effect in lessening the physical and mental powers during childhood. Hence, it may be said that the first relation of physicians to the public schools is the preparation of children for school life through careful attention to their physical welfare. If this function were properly performed, fewer children would enter our public schools with marked physical defects of vision, hearing, and speech. Pathologically enlarged tonsils and adenoids would be less frequently noted. Teeth would manifest less decay; spines would present fewer abnormal curvatures, and tuberculosis and scabies would be far less common. The possibilities of retarded mentality would be appreciated by physician, parents, and teacher when the child enters school. The physician as a medical counsellor and guide should be the earliest agent in recognizing backwardness and defectiveness. Not only should he be able to note the necessity and importance of speech defects, but he should be able to suggest the methods of correction.

Similarly, the supervision and direction of the welfare of the so called nervous child is of exceedingly great medical and educational significance. One so frequently hears the statement that the physician has advised delaying the treatment of children for some particular defect, usually of a mental order, until the child is seven to ten years of age, on the theory that such defect will have dis-

*Read before the Harlem Medical Society, December 2, 1914.

appeared by that time. Such counsel, still too frequent, is dangerous, misleading, and deprives the child of its merited opportunity for proper development under the direction of willing and anxious parents.

The preservation of the health of children in the preschool age is a matter of immense economic as well as educational importance, and should receive commensurate attention from the family physician, who virtually is a sanitary health officer as well as the medical supervisor of the families coming under his observation and medical care. The greater part of the preventive work essential for the proper preparation of children for schooling lies within the province of the general practitioner. If there are criticisms because of the large number of children who come to school with defects of one type or another, they may be partly attributed to the decreased support of the family physician and to the unusual development of specialism by men of insufficient training and experience to enable them to see beyond their own special sphere of activity. The physical standards of school children may be raised during the preschool age by the sane medical counsellor who sees the future of his patients and is not satisfied with attending merely to the present ailments. The educational gain that would accrue if children came to school better nourished and freer from physical defects, cannot be estimated at the present time because sufficient statistics relating to this phase of the problem do not exist.

After children have arrived at the theoretical school age, it should be the decision of the physician which determines whether or not the child should go to school. While educators naturally desire children to enter school at an early age in order to accomplish the best pedagogic results, the physician should be the arbiter to decide the age at which each particular child should enter school and for what period of time it should remain in school. Full time teaching is not necessary for all children, and is distinctly harmful to some. The necessity of guidance as to the time spent in school and even the nature of the subjects to be studied should come within the purview of the family physician. Hence, the medical aspects of education should be considered by physicians so that they may give intelligent advice to those parents who solicit their counsel and who also seek to educate their patients as to the necessity of soliciting such advice.

Marked educational advantage would accrue if each child, upon admission to a public school, took with him a medical certificate from his family physician, stating in brief the existing physical defects together with any suggestions regarding the physical or mental condition of the child. This would in fact place the first responsibility for medical inspection upon the family physician. A plan of this nature is now the subject of experiment by the department of health. The great difficulty with procedures of this character requiring the filling out of a special blank, is the indifference, neglect, and at times dishonesty of a small proportion of the medical profession whose actions tend to cast distrust upon all records emanating from the profession. In order to give physicians their full responsibility in matters of the health of school children,

it is essential that they feel the importance of personally supervised medical inspection of school children and recognize the advantages that would accrue to them in the way of correcting the defects which they note in preparing the blank of inspection for the school authorities.

A system of this character would prevent partially deaf children from being regarded as stupid, and avert the placing of children with defective vision among the mental defectives, and would probably prevent children with such speech defects as stuttering from being placed in ungraded classes. Tics, chorea, and other incipient nervous disorders would not be overlooked until they become obvious to the nonmedical teacher. With such medical cooperation as I have suggested, principals and teachers within the school system would become more capable of fulfilling their duties to the public. For those children whose parents cannot afford to pay for this preliminary examination, the city would necessarily have to supply medical inspection, either at a low cost or at special school clinics, or else supply the medical inspection at the school itself. The percentage of poor persons desiring to select their own physicians would still have recourse to the clinics, but it is just at these places, where time is scarce and all is hurry, that the poorest medical inspections are to be found.

There is frequently a tendency of physicians to hurry children back to school after illness under the stress of parental urging that their school work may not be interfered with. It is of paramount importance to the educational system that the physical health of the child should receive the first attention, and children should not be sent back to school when they really require fresh air, increased rest, and special convalescent care. Nor, indeed, should a child be sent back to school for both sessions when even half sessions might throw too much strain upon his enervated system. Children learn more easily and more rapidly when in normal condition, and with less damage physically and mentally than when nourishment and energy are below par. Physicians should be the first to emphasize the fact that health must not be sacrificed for immediate educational progress.

In so far as contagious diseases are concerned, the school should also be given the benefit of the doubt. The responsibility of the physician to the community is far greater than to the family. Until diagnosis is definitely established, children should not be permitted to attend schools. If a contagious condition such as trachoma or ringworm is noted, a communication should be sent to the principal of the school in order that the child may be placed in a special class and that the other children in the school may secure proper protection. Obviously, no contagion bearer or bacilli carrier should be permitted to return to school. The physician is in a broad sense responsible for much of the general health of the school children, and his attention should necessarily be directed to the importance of safeguarding the physical and mental powers of his patients, while he is equally cautious in protecting other children from the menace of preventable diseases.

The health of teachers necessarily plays a large

and important part in the development of education and in maintaining the health of the school community. At the present time, the problem of absences of teachers is of the utmost educational and economic importance. The losses in money and education arising from unnecessary absences is greater than the educational authorities themselves are willing to admit. Teachers should not be hurried back to work until they are thoroughly capable of taking up their teaching duties. Patience, attention, gentleness, calmness, concentration, decision, are requisite in a teacher and are difficult to secure on the part of a teacher whose body and mind are in an abnormal condition. With weakened nerves and generally impaired health, the teacher is incapable of performing her pedagogic duties for which she is compensated by the city. The principal sufferers from teachers in ill health are the children themselves, who are not only exposed to unhealthful influences, but fail to receive proper, adequate, or well balanced teaching.

Many physicians do not feel their responsibility in signing excuses for absence of teachers enabling them to receive refunds for absence. It is a severe commentary upon medical thoughtfulness to find a physician's name signed to an excuse of absence of seventy-two days for acute laryngitis or the absence of four days for neurasthenia. It is equally strange to give an excuse for absence for chronic mastoiditis when pregnancy is the real cause. It is unnecessary to catalogue the obvious cases where physicians while not actually in collusion have been ultrasympathetic to the teacher without feeling their responsibility to the community which pays her and whose children she is under the responsibility of teaching. Tuberculous teachers, epileptic teachers, partially deaf teachers, those with impaired vision, those with contagious skin diseases, come within the ken of family physicians who should advise them as to the serious nature of their ailments and, therefore, instruct them regarding the importance of notifying their superiors as to their limitations in the interests of themselves and the school children.

I believe that the physician should take particular interest in the problems of school hygiene. The utilization of educational plants so as to afford abundant opportunity for the education of all types of children is a medical question as well as an economic and an educational problem. Special classes are now held for the blind, the deaf, the cripples, the anemic, and the tuberculous. From a study of the needs of these special classes, we have learned the necessity of a sanitary school building, administered on hygienic principles. School hygiene is a health investment and should be demanded by physicians regardless of the difficulties of administration and the high per capita cost. Physicians, with their full knowledge of the rational health and educational value of hygiene, should be in the vanguard in demanding that school opportunities now available for abnormal children should be afforded normal children of normal parents. Medical organizations should give more time to reports upon the health problems of the public schools, submit such reports to the educational authorities, and defend them before the Board of Esti-

mate and Apportionment when the health or school budget relating to school hygiene is under consideration.

Medical cooperation with the numerous medical officers now working in the schools should be freely given. The reports of the medical inspectors and school nurses should be taken at their true value. They are neither final nor decisive, but merely suggestive in nature. They indicate that the child who has been inspected by the school physician is not normal. The family physician may disagree as to the necessity for the removal of tonsils or for the correction of a spinal curvature, but that decision is for the practitioner to make. His attitude toward medical inspection of school children should be that of appreciation, and criticisms as to the working of the system should not be based upon isolated instances of error on the part of the medical inspector. Medical consultations in themselves in private work indicate that errors are not entirely beyond each one of us serving in the capacity of family physician. The function of the medical inspector is to indicate particular portions of the body requiring special investigation, and his first duty has been performed when he gives a notification card to the child. His work has borne fruit when the return card has been signed, stating that the child is under the supervision and care of a family physician.

Criticisms of the school system are welcome. It is wholesome that physicians should express their opinions on all matters pertaining to school hygiene. In order that the criticisms may be constructive in nature, it is essential that physicians have some broad information regarding the public school system. He should know in a general way of the playground facilities, the fresh air classes, the ungraded classes, and be able to discuss the problems of school furniture and the questions of school lighting and ventilating. As far as the health of his particular patients is concerned, it is necessary for him to secure some definite information regarding the course of study, the hours of study, the amount of required home work, the extra studies pursued and the time available for eating, play, and rest. With such information, he is able to serve the school as well as the patient.

The physician as a parent and a taxpayer should have a wide insight into the purpose of elementary school education. As a parent and physician, he should be appreciative of the interrelation of the mental development of children and their physical well being. As a physician and taxpayer, his scientific training should enable him to interrogate the responsible authorities with reference to the results of their educational work and the physical health of the children. As a physician and a parent and a taxpayer, the responsibility of the general practitioner is greater than that of any other group of citizens in a community. His social horizon should be broader, his mental equipment better, and his scientific judgment should be of greater value in determining problems of a medicoeducational nature. For this reason, the physician is the most valuable member of local school boards, parents' associations, or indeed in any phase of educational work.

Public service for physicians is being recognized

in the increased number of physicians in the employ of the city and the State. No greater public service can claim the thought and knowledge of physicians than the problems of public schools. Herein lies a splendid opportunity for valuable volunteer public service. Efficient citizenship demands a foundation of health. The newer development of education lays stress upon the health of school children and that of the teachers. The curriculum and the methods of administration were long in the forefront of educational thought. Today, education draws more from the field of physiology and psychology, and there is, therefore, a growing need of the interest, cooperation, and support of the medical profession. In brief, the relation of the physician to the public school system should be that of a critic, guide, and cooperator in the development of rational, preventive health measures in the physical and mental education of children in our public schools.

230 WEST NINETY-SEVENTH STREET.

THE PHYSICIAN'S LIFE.*

BY M. GINSBURG, M. D.,
Philadelphia.

The human mind is a conglomeration of ideas. These ideas are the result of experience and that, in turn, springs from our contact with the outside world. Thoughts are continually originating within us as a result of impressions received, and as these impressions vary in number and in kind from time to time, so our thoughts and our external expression of these thoughts in action, change with varying circumstances.

I have always felt that it was a great loss to our understanding of human nature and to our appreciation of the fundamentals of the development of human thought, that infants and children should not be able to analyze with sufficient clearness their viewpoint on all matters. Their impressions of conditions must be so different from those of adults, that if one could but look into their mental life one would surely be amazed at the picture. Each age arrives at its own conclusions; on the other hand, each set of conditions brings with it a separate analysis of life. One person will view certain affairs with what are to him—at his age and in his environment—definite deductions; another, of a similar age, but in a different environment, will consider the deductions of his neighbor as delusions; and so on.

It is with these facts in view that I consider it my duty and pleasure to record the experiences of a physician's life and its treatment as I see it. Have not all who may have in their possession little essays or compositions which they have written in former years, and which have outlined their inner life at that period—have not all felt an exquisite pleasure in thus recalling the sensations of long ago and tracing development until they are what they are today? Let me then first picture the lives we lead, and then call attention whither our lives are leading.

Some of us have been graduates in medicine for a long time. To others have more recently been

tendered their sheepskins. It is, however, within the memory of all, and we can, with singular accuracy, again unfold to ourselves and to our friends the hard days of struggle and deprivation, physical, mental, and financial, through which we passed before we reached our goal. Then, seemingly, the world was ours; all its treasures were free, awaiting our grasping hand. We walked as if on air, so buoyant were our hopes and expectations. We went through our commencement exercises with but a tithe of the realization of its real meaning. To us it was bliss, perfection, the acme of all desires and strivings. We were M. D.'s.

For another twelve or eighteen months, as residents in the hospital, we continued in the same line of thought. We came into actual and continuous contact with pain and suffering, but let us be truthful with ourselves. Did we really take it to heart? Did it chasten our spirit? Did we see suffering at its source, the squalid home, the meagre income, the many mouths to feed, the filthy surroundings, the dense ignorance of the lower classes? No! Here we were in a hospital with the most up-to-date contrivances in the way of method, of cleanliness, of hygiene, with nurses in immaculate attire tendering their services to children or adults who soon lost all trace of their home surroundings. We issued our orders and felt certain of their prompt and skillful fulfillment. Difficulty in diagnosis did not bother us; we took our own time, made innumerable laboratory and clinical examinations, and in the meantime treated upon general principles.

This is ideal, but not real when considered in the light of our subsequent experiences. Confronting us were new problems, new difficulties. We learned, some of us, perhaps, to our utter amazement, that it was not all plain sailing: On the one hand, the sea of our practice was too calm, with never a ripple on its surface for days and days; on the other hand, breakers were ahead, leading us into financial upheaval. We found in those few patients we did have a lack of trust, a hypercritical spirit. Either the first teaspoonful of medicine helped the patient or we were helped out of the house. Where could we apply our knowledge of scientific medicine? The diagnosis must be immediate, the prognosis definite, the cure instantaneous. We made closer acquaintance with alleys and houses in the back lot. We saw dire necessity at first hand. We learned to treat, not only the disease, but the patient as well, for we understood, for the first time perhaps, in its true significance, the fact that each patient requires a distinct pharmacopœia all to himself, that it is only a careful study of his mental, social, financial, hygienic ailments, that will place us upon the right track for the cure of his physical ill being.

With the state of affairs existing now, we became almost instantly disillusioned. By this term I do not mean cast down, depressed. Many of us had had a rocky path to travel previously, and it had only been the reaction which had sent us up to Utopia, buoyantly expectant. We now assumed our true level; facts took on their natural shape and contour, and having recognized this, we were more in a position to grapple with our problem sanely.

Whether consciously or unconsciously, our routine of living, as I see it, comes under several subdivisions, one merging into the other, and together

*Read before Mount Sinai Hospital Ex-Residents' Alumni Association, December 2, 1914.

helping to form the concept of life for each individual among us. It is owing to our different interpretation of these phases, that one of us will pursue one course, another another. What are these subdivisions?

1. Our concept of medicine as a science.
2. Our concept of medicine as a profession.
3. Our concept of medicine as an agency for humanity.

4. Our concept of our own inner life.

Let me consider them in this order.

1. Medicine as a science. Four years in college, one or more years in a hospital, constant contact since then with all aspects of pathology cannot fail to produce an intense liking for the study. Medicine is intrinsically absorbing. The very indefiniteness of trains of symptoms, at times, adds further zest to our efforts to explore the apparently inscrutable mysteries of the human body. Nothing is so alluring as that which appears intangible. No matter how long we have been in practice and how many patients we may have treated, there is always that element in disease which causes a variation of manifestation.

All this, however, applies only to one who does not make of medicine merely a makeshift for the acquirement of position, social or financial, who sees a patient, hastily prescribes, leaves, and drops the matter from his mind. There are undoubtedly such physicians, and no matter what external marks of success they may acquire, I do not envy their state of mind. For the proper pursuance of our work from a scientific point of view—the course which will at least lead to a state of self satisfaction,—we must constantly be on the alert for new facts to observe, new deductions to make. We should take frequent opportunity for exchanging views with our medical friends, in short, attend our medical societies, read our journals. It is not sufficient not to forget one's medical knowledge; it is a science with wonderfully expansive possibilities, and in order to keep abreast of the times, keep out of the rut of sameness, we should always be eager for additional information.

2. Medicine as a profession is a live question, and should occupy much thought. We cannot be entirely altruistic, we should not be entirely commercial. On the one hand, the nobility of our calling is emphasized, on the other, the nobility of providing for one's own should also be recognized. In no other walk in life is so large a portion of time and labor devoted gratis. You know how taxing our work is, how at all hours we are subject to call; you know also how slight, comparatively, is our remuneration. Wherein lies the fault?

Our duties must be performed. Treatment for sickness is not a luxury, it is a vital necessity, and by whatever means, it must be applied. It is therefore the lack of the sense of obligation on the part of the community toward the physician which produces the unbalance of conditions. Toward this end should the medical profession labor, labor as a body, voice their opinions strenuously upon all occasions, give wide publicity to their grievances, and drop the idea that formerly prevailed that the money question was an unethical one for the physician.

The dispensary problem should also be dealt with

adequately by an efficient social service corps such as has been instituted in several of the hospitals of Philadelphia. Through this and other means, the public should be made to understand the sacrifices our profession makes for them and should be able to appreciate the value of our service in financial terms.

3, 4. With the practical side of medicine discussed, we can turn to its humane aspect and to its effects upon our inner life. Are those who take up the study of medicine so constituted that they are more fit than the rest of mankind to pity and comfort those about them? I do not think so. We are all originally of the same mould, but the nature of our contact with our neighbors, the confidential and most intimate relationships, bring it about ultimately that our natures become metamorphosed. It is not true, as is the common belief, that the physician is hard hearted and has no sympathy with those in pain. We have not become callous through our everyday acquaintance with sickness. We cannot feel the sharp agony of the friends of the patient, but we do try our utmost to get the patient well and we rejoice when this is accomplished. Professional pride for having obtained good results, of course, also enters into our sense of satisfaction, but, notwithstanding all other attempts at explanation, I suspect that there lurks within each one of us, whether we acknowledge it to ourselves or not, a deep feeling for the woes of our patients.

This finds wider and more recognized expression in the wonderful achievements of preventive medicine, in the noble spirit with which men give up the work of a lifetime for the single purpose that others may live, without thought of their small emoluments and their personal risk of life.

But enough of this; let others sing our praises if they be so minded. The conclusions that I wish to impress upon all, are that no matter how hard our lives may be, no matter how much we may be imposed upon by those who do not fully appreciate us, we still have reason to remain optimistic. We are performing our duties and performing them well. Throw off all concern. Do not grumble if you have not yet seen the light of day. The night is waning; in the distance you can already discern the Morning Star. Contentment with your present condition will give you more energy, greater stimulation for onward strides. Do your share, and your own conscience, if nothing else, will bring you your reward.

1511 SOUTH NINTH STREET.

THE PRESENT STATUS OF SYPHILIS THERAPY ABROAD.

By A. STRACHSTEIN, M. D.,

New York,

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Our knowledge of syphilis has, in the last decade, made more progress than in its entire history. Indeed, the discovery of *Spirochaeta pallida*, Ehrlich's salvarsan, and the Wassermann reaction have not only revolutionized our understanding of lues, but have also thrown new light upon correlated affections such as paresis, tabes, and others. The clinics throughout the world, and especially those of

Europe, have recently made exhaustive studies of this disease, and it is my aim here briefly to outline personal observations made at some of these clinics.

Professor Wechselmann, at the Virchow Krankenhaus, Berlin, is of the opinion that salvarsan and its derivatives can cure syphilis without the aid of mercury. In his division, where probably upward of 40,000 salvarsan injections have been administered, mercury is an unknown drug. The patient is given an intravenous injection of salvarsan or subfascial injection of neosalvarsan once in from three to seven days until he receives from five to seven injections. The Wassermann is taken during the period of treatment and again at regular intervals several weeks after the last injection. There are, however, but few authorities in Germany who support Wechselmann's teachings. As evidence of this, Wechselmann was severely attacked and criticized by many when he presented his reports and statistics before the Berliner medizinische Gesellschaft.

In Professor Lesser's clinic, at the Charité in Berlin, under the guidance and supervision of Professor Tomaschewski, I was able to observe and follow up a series of cases treated by a method which is followed in many other clinics, and which I shall describe in detail. Before a given fresh case of lues is undertaken for treatment, it is necessary to have an accurate knowledge, not only as to the presence of spirochetes in the primary lesion, but also as to the Wassermann reaction, even though spirochetes have been found. This step is important, because in cases where spirochetes have been found in the primary lesion, and the Wassermann reaction is still negative, it indicates that the infection is still of a local nature, and also that the spirochetes have as yet not been thrown into the general circulation, causing thereby a systemic infection. In such cases, the treatment may be successfully carried out by the abortive method; on the other hand, a positive Wassermann shows an undoubted general systemic infection which will require a more prolonged and persistent treatment.

Generally the spirochetes can be demonstrated in the primary lesion from ten to twelve days after infection. The duration of the primary lesion often depends upon how soon spirochetes are found. When they are numerous and found early, it indicates a short duration. The spirochetes can be best procured from the edge of the chancre and not from the centre. The first few drops of secretion are best wiped away until we are able to procure a drop of serum from the deep and infiltrated tissue, since it is here that the spirochetes are lodged. The dark field illumination method is undoubtedly excellent and should be the one of choice. Its simplicity, accuracy, and the little time required recommend its use.

Should calomel powder locally have been applied to the primary affection, spirochetes will not be found, and in such instances it is best to apply normal saline solution for twenty-four hours before a search is undertaken. Iodoform powder does not hinder their presence.

Having ascertained the presence of spirochetes and having found the blood to be negative, we can now safely proceed with the treatment by the abortive

method, i. e., the immediate administration of salvarsan without any preliminary use of mercury, provided, of course, that there exists no contraindication.

First day. Administer salvarsan 0.1 intravenously and watch for ill effects. Should any arise, it indicates that the patient does not tolerate this drug and the treatment should be modified. The case presenting no ill effects, we proceed as follows:

Second day. Intramuscular injection of 0.5 c. c. calomel emulsion, consisting of calomel 1.0, olive oil 10. Pause from three to four days, and if no complications arise, proceed on the

Sixth or eighth day: Calomel emulsion 0.5 c. c.

Tenth or twelfth day: Salvarsan 0.3 c. c.

Fourteenth day: Calomel 0.5 c. c. for five times at corresponding intervals.

Twenty-sixth day: The third salvarsan injection of 0.3 c. c. is administered. At the end of the first month from five to eight calomel injections are resorted to at the corresponding intervals. This is followed by two more salvarsan injections, making five in all, and finally five to eight calomel injections are given on an average twice a week. The entire course of treatment should last about eight weeks. Before a cure is pronounced, a Wassermann reaction is taken after a lapse of two months which must be absolutely negative. In cases where calomel injections are found to be extremely painful, the dose may either be reduced or replaced by the salicylate of mercury. Where the glands are found enlarged, while the Wassermann is still negative, the abortive treatment is not to be recommended.

The second group of cases where the Wassermann had already become positive, the treatment differs. It has been observed by many authorities that where salvarsan is administered without a previous brief preliminary mercury treatment, the dead spirochetes are abruptly thrown in large numbers into the system for absorption, thus causing toxic symptoms. Furthermore, the Herxheimer reaction frequently observed in the skin may similarly occur in the central nervous system, meninges, and along the optic nerve, and cause an occasional fatal result. Therefore, it is advisable to reduce gradually the number of spirochetes and cause their absorption slowly. This is best accomplished by administering mercury for one week prior to the administration of the first salvarsan injection.

The inunction method with blue mass is used in cases where the patient can be relied upon zealously to devote the proper length of time for rubbing in the drug. The preparation is absorbed slowly and may be gradually increased to point of toleration. This method is best carried out before bed time and in a small closed room, so that the patient absorbs a certain amount of mercury through the lungs. If the patient performs his inunction in the morning, however, and thereafter does considerable manual labor, the effect of the mercury will be very mild, especially in summer, since it will be rapidly eliminated. Each inunction should last twenty-five minutes and should be made each night on some different part of the body. On the seventh day a bath is taken for cleansing purposes. A light weight individual may begin with three grams, while a

large one gets five grams. The treatment may thus be tabulated:

1. Give six inunctions, then administer salvarsan 0.2.
2. Give six inunctions, followed by salvarsan 0.3.
3. Give twelve inunctions, followed by salvarsan 0.3.
4. Give twelve inunctions, followed by salvarsan 0.3.
5. Give twelve inunctions, followed by salvarsan 0.3.

Beside the foregoing, give an injection of calomel emulsion in 0.5 c. c. of one of calomel to ten of olive oil, once a week. After the administration of three salvarsan injections, twenty-four inunctions, and three calomel injections, a Wassermann reaction is taken, and if this is found to be positive, you must resort to a more vigorous treatment. Twelve weeks after the last salvarsan treatment, another Wassermann is taken, making in all three reactions, thus:

1. One at the outset for diagnosis.
2. One after the third salvarsan injection.
3. Three months after the last salvarsan injection.

If, for any reason, the inunction method cannot be carried out properly, one must resort to the injection method, using some insoluble salt of mercury like calomel or the salicylate of mercury or gray oil. The injections are carried out as follows:

1. First day, 0.5 c. c. of the emulsion (one to ten of calomel or salicylate of mercury in olive oil).
2. Three days later, one c. c. of the emulsion is given.
3. Three days after the second mercurial injection, the first salvarsan, 0.2 c. c. injection is given. Then continue to give three mercurial injections after each salvarsan injection, so that in all five salvarsan injections are given and the last one is followed by five mercurial injections.

Tomaschewski recommends that after a patient has gone through such a cure, he should undergo a physical examination three months later, to ascertain the condition of his skin, mucous membranes, tongue, throat, genitals, anus, palms of hands, and the hair, and also that a Wassermann should be performed. If the Wassermann is negative, wait another three months. Six months after the completion of the first treatment, the patient is put through a second. The Wassermann reaction is then tried every six months for three years and if it remains negative, then the patient may be considered cured.

Cases of latent syphilis, where a positive Wassermann is present, should undergo a long series of inunctions combined with salvarsan or gray oil injections or both.

When a patient has gone through an abortive treatment and the Wassermann reaction remains negative one and a half year after the completion of the cure, then consent may be given to marriage. The other group of patients should not marry until two years after a successful completion of the last treatment. It is advisable, however, to put a patient through a third course prior to marriage.

To those who have had tertiary manifestations, marriage should not be permitted until five years after the completion of the last treatment. But

those belonging to this group should have a lumbar puncture performed and the fluid examined, to ascertain whether there are inflammatory changes in the central nervous system. The fluid when tested by the Nonné Appeld test, should remain perfectly clear, contain no albumin, and be microscopically free from cellular elements; the Wassermann should be negative. Should, however, any of these elements be present, it would indicate that the patient is threatened either with *tabes dorsalis* or general paresis.

17 EAST THIRTY-EIGHTH STREET.

Correspondence.

LETTER FROM PARIS.

Medical Society of the American Ambulance of Paris.—Oral Hygiene in the Wounded.—Blake's New Splint.—Weinberg's New Serum.—Interest in Crile's Methods of Anesthesia.—New College Building Added to the American Hospital.—Details of the Organization of the Latter.—Dental Department, Ambulances, X Ray Room, Pathological and Chemical Laboratories.

PARIS, March 16, 1915.

Since the last conference instituted by Doctor Crile, at which Doctor Carrel, Sir Almroth Wright, and Sir Berkeley Moynihan took part, the idea has taken root and the result has been that a Medical Society of the American Ambulance of Paris has been formed. The society meets regularly every week for the interchange of ideas between the different departments. At these meetings, not only do the doctors connected with this institution take part, but prominent medical men of Great Britain and France as well. The president is Dr. W. H. Lower, the associate of Doctor Crile, at present in charge of the Lakeside (Western Reserve University) Unit.

Up to the present time four regular meetings have been held at which a number of subjects have been discussed. At the first conference Doctor Dubouchet, chief surgeon of the ambulance, spoke on the treatment of surgical wounds. The second conference was devoted to the subject of Oral Hygiene in the Care of the Wounded, and Doctor Blake presented and discussed A New Traction Splint, which he had invented for the treatment of fractures of the humerus and femur.

The subject of oral hygiene in the wounded was presented by Professor W. H. Potter, of Harvard University. Professor Potter had been spending his sabbatical year in Europe at the time of the outbreak of the war. He spent some time at the American Ambulance in the department of dental surgery. His remarks were the collected observations on the numerous cases he had occasion to see. He emphasized the importance of dental hygiene precautions, especially when one considered the painstaking steps that were taken at the ambulance as well as at other centres of hospital work to sterilize everything that the patient ingested. He touched only lightly on the various operating methods insti-

tuted for the relief and restitution of gunshot injuries of the upper and lower maxilla.

The third meeting was devoted to methods of transportation of the wounded. The subject was presented by Dr. E. L. Gros and illustrated by stereopticon and cinematographic pictures. The great role that American automobiles, especially of light make, have played in the rapid and efficient



FIG. 1.—A fleet of ambulances converted from light weight American cars.

transportation of the wounded was thoroughly made clear. The last meeting, held several days ago, was devoted to the complicating illnesses to which the surgical patients were exposed. The great incidence of influenza in convalescent wounded patients was gone into by Doctor Taylor. Interesting neurological observations made among the numerous patients at the hospital were discussed by Doctor Stone, of Cleveland, and Doctor Craig, of New York.

Doctor Toussaint, inspecteur général du service de santé, visited the ambulance and was much impressed with the remarkable organization. The hospital at the present time has again passed its record mark and is running at full capacity. The past few weeks have been signalized by some very interesting and rare operations. One patient who had been in the hospital for a fairly long period and in whom a bullet had entered the pericardial cavity and had remained there without causing suppuration, was successfully operated upon by Doctor Lower; the patient is at present making an uneventful recovery. Another interesting operation was the transplantation of three inches of rib into the lower jaw of a patient in whom four inches of the right half of the inferior maxilla had been carried away by shrapnel.

The most interesting and perhaps the most pregnant of recent occurrences has been the preparation of a serum by Doctor Weinberg of the Pasteur Institute, who is at the same time consulting bacteriologist to the American Ambulance. Doctor Weinberg, it seems, has succeeded in preparing his serum of a fairly high antitoxic and bacteriolytic value by the injection of a number of different strains of *Bacillus welchii*. He has succeeded in preventing manifestations of infection in guinea-pigs. His results on soldiers carried out almost exclusively in the American Ambulance at Paris as well as at Juilly, are still not sufficient in number to permit of definite conclusions.

Since Doctor Crile presented his paper on Shock and Anoci Association to the Société de biologie,

the French medical military authorities have become much interested in his methods of anesthesia. Captain Harlay has been detailed by the French government to the American Ambulance to study this question, and familiarize himself with the technic. Professor Dastre, president of the Société de biologie, and one of the most distinguished French physiologists, visited the hospital and became enthusiastic over the attention paid to specialties.

A word with regard to the organization of the hospital may not be amiss. At the outbreak of the war the medical staff of the American hospital considered ways and means of handling the wounded in the event that they were sent to Paris. With the limited facilities of the hospital it was seen that the help rendered by the hospital itself would be insignificant compared with what was needed. Close to the hospital is a large lycée in process of construction; the skeleton of this building was complete. All that was necessary was to complete the interior fittings to have the building ready, and at the suggestion of Doctor Turner, the municipal authorities of Neuilly were approached with regard to the conversion of the unfinished lycée into a temporary hospital. Impossible conditions were proposed, and it was owing to the indefatigable efforts of Doctor DuBouchet that the lycée was finally handed over by the war department to the American Hospital. Subscriptions were taken up among the American colony and enough money collected to permit of immediate work being started. Doctor Blake, who was in Paris, immediately volunteered his services, and has been an important factor in the success of the hospital.

From the very outset the hospital ambulance was organized on the lines that have helped make American industrial organizations the wonderful institutions they are. Each service was placed in charge



FIG. 2.—View of terrace from the nurses' quarters, American Ambulance Hospital (courtesy of Dr. J. P. Hoguet).

of the man best fitted for the work. The idea of the ambulance committee was to leave no effort unspared, and the carrying out of the scheme has made of the institution the most modern military hospital in France. Today the hospital has three surgical services under the direction of Doctor DuBouchet, Doctor Blake, and Doctor Mignot respectively. Each of these surgeons has house men who

are both externs and interns. They assist at the operations, dress the cases, and are subject to call at night.

In addition, there is a large dental department under the supervision of Doctor Hayes, an American dentist practising in Paris; he has associated with him several American as well as French dentists. The work of this department is a bit out of the usual, and I shall attempt to describe it in my next letter. Added to this, there is a large x ray department, which has an interesting collection of photographs of unusual bone and visceral wounds. The hospital manufactures its own dressings and has a large bandage room, where not only bandages but orthopedic appliances are made. The department of ambulances numbers today well over 100 cars of all makes that have been converted into ambulances. The small American car is the most conspicuous and has proved itself of immense utility.

The pathological laboratory was organized almost entirely through the initiative of Doctor Blake, at whose invitation I came from New York. The laboratory department consists at present of a morgue and an autopsy room, in addition to which there is a suite of rooms (formerly the concierge's loge), which has been converted into the pathological laboratory. These rooms have been subdivided into a record room, a room for pathological histology, a room for chemical examinations, i. e., clinical pathology, and one room entirely devoted to bacteriological investigation. In addition, there is a room set aside for the specimens gleaned from autopsies and surgical operations, and also a small room where the smaller laboratory animals are kept for either clinical or research purposes. The extent of the work and the number of patients have rendered the pursuit of research problems a bit difficult. Some work is being carried out at present along the line of wound infections, which will be communicated at a later date.

At the suggestion of Doctor Blake, the universities in America have been approached with regard to sending over units for the study of problems connected with war. Doctor Crile, of Lakeside Hospital, was the first to respond, and brought with him a complete hospital unit. He received a service of several hundred beds and his term has been a source of inspiration to everyone connected with the place.

Of various items of interest which come up with regard to work being carried on at other centres of French medical military activity, I shall write in my next letter in conjunction with whatever is of interest here.

B. J.

Therapeutic Notes.

Treatment of Hemorrhage in the Alimentary Tract.—L. Rénon, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris*, January 29, 1914, reports two cases of hepatic cirrhosis, one of ulcerative enterocolitis, one of tuberculous enteritis, and one of uremic intestinal ulceration, all with copious intestinal hemorrhage or hematemesis, in which a subcutaneous injection of one grain (0.06 gram) of emetine hydrochloride was followed by complete arrest of the bleeding. In two cases doses of one third grain (0.02 gram) were given on the

next day or two, to prevent recurrence.—Lesné, in the discussion of Rénon's article, stated that emetine had not proved of use in his hands in two cases of grave intestinal hemorrhage in typhoid fever, but that it had been very efficacious in a case of icterus with obstinate intestinal hemorrhage, three injections of two thirds of a grain (0.04 gram) of emetine arresting the bleeding. Similar success had been had in a case of hepatic cirrhosis with rebellious epistaxis.—Ramond stated that he had injected as much as one and a quarter grain (0.08 gram) of emetine at a dose without noting any untoward effect.

Treatment of Pyelitis in Pregnancy.—R. E. Wobus, in the *Journal of the Missouri State Medical Association* for May, 1914, recommends that if the patient is in a state of profound toxemia, perspiration should first of all be induced by means of the hot pack, by hypodermic injection of one fifth to two fifths of a grain (0.012 to 0.024 gram) of pilocarpine hydrochloride, or by these measures combined. If vomiting is not too severe, hexamethylenamine in sufficient doses should also be given. The author usually begins with doses of fifteen grains (one gram) every three hours as follows:

R Hexamethylenaminæ,3iii-iv (12-16 grams);
Potassii acetatis,3iv (16 grams);
Fluidextracti hyoscyami,3i (4 c. c.);
Fluidextracti tritici, q. s. ad.....3iii (90 c. c.).

M. et ft. solutio.

Sig.: One half tablespoonful to be given with plenty of water every three hours.

In case cystitis exists and the urine is alkaline, it may be necessary to alternate the potassium acetate with acid potassium phosphate. By the macroscopic appearance of the urine alone one can usually tell when the patient is getting enough hexamethylenamine, the formaldehyde formed in the urine coagulating the pus, the supernatant urine being left nearly or quite clear. At the same time the fever disappears, as a rule, and the patient feels much better. The amount of hexamethylenamine in the foregoing formula should then be reduced, or the interval between doses increased, just enough of the drug being given to inhibit bacterial activity and not enough to irritate the urinary passages. By combination of this drug with a urinary demulcent, such as tritium, in large enough doses, many of the disagreeable symptoms sometimes caused by the former are obviated. After the acute symptoms of pyelitis have subsided, hexamethylenamine in doses of about ten grains (0.6 gram), twice or three times a day, should be continued for some time. If the drug is not well borne after a time, one may resort to boric acid, phenyl salicylate, or acetyl salicylic acid. Later on, some balsam, such as oil of sandalwood or copaiba, may be given. Rest in bed, plentiful ingestion of water, and a bland diet are important adjuvants to the treatment. In severe cases, as well as in those neglected for some time, induction of abortion affords the only hope of saving the patient's life. If, furthermore, the pyelitis does not subside soon after the termination of pregnancy, evidence is afforded that there is some other cause of the pyelitis, and the patient should be turned over to some one skilled in the urinary diagnosis. Where pyelitis complicating pregnancy is thought to be due to the latter, it may, as in cases of tuberculosis of the kidney, merely have been aggravated by it.

NEW YORK MEDICAL JOURNAL

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and The Medical News.*A Weekly Review of Medicine.*

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NEW YORK, SATURDAY, APRIL 17, 1915.

THE DIAGNOSTIC DIFFICULTIES OF
MOVABLE CANCEROUS KIDNEY.

Given a case of a kidney the seat of malignant growth and at the same time movable, the question at once arises, Did the growth develop on a previously movable organ or is the mobility secondary to the neoplasm? Congenital renal ectopia need not be considered on account of the fixity of the kidney, but it can very well be supposed *à priori*, from analogy with testicular ectopy, that the kidney may, for this reason, be predisposed to malignant growth. The acquired type of movable kidney does not favor the production of malignant change and cancer in a movable kidney is unquestionably rare. According to Morris, kidneys the seat of neoplasms often become movable and their supporting structures become relaxed, and Boeckel is of the same opinion, particularly in the case of cysts. Le Dentu points out that there are cases in which the renal tumor causes mobility of the organ from its own increased weight, while Guillet has shown that when the renal neoplasm has developed, it tends toward the peritoneal cavity from the simple action of gravity.

Too much importance should not be attributed, however, to the action of increased weight, because it is quite erroneous to suppose that kidneys the seat of neoplasms become completely mobile. The study of the evolution of renal growths shows that

if their development obliges them to tend toward the abdominal cavity, nevertheless they retain their lumbar situation and become abdominal only when renal ptosis has preceded the new formation.

If the renal tumor is very movable with considerable displacement, it clearly indicates that the malignant neoplasm has developed in a previously ectopic kidney, and if the renal ptosis was not diagnosed before the appearance of the growth, this is simply because it was not marked and became so only when the malignant enlargement advanced in volume, thus increasing the mobility. If, on the contrary, the tumor is not completely abdominal, if it is abdominolumbar in situation, the mobility will be consecutive to the increase in size and to the weight of the organ which will have undergone a slight displacement. The tumor, under these circumstances, is rather more mobilizable than movable in the strict sense of the word.

Whether or not the mobility is primary or secondary, the fact, no matter how interesting, has no great practical bearing, and the all important point is not to overlook the presence of the new growth.

IS CONCEPTION A VOLUNTARY ACT?

We have received from a layman prominent as a minor poet and general writer, an inquiry prompted by the stories coming from France and Belgium of the preparations made to take care of the expected shoals of illegitimate children fathered by the soldiery. Inspired doubtless by his poetic temperament, our correspondent believes that as the women were in most cases French or Belgians, and the men invaders, intercourse could have been only under duress, and he seems to take it for granted that no conception will follow rape. Indeed, he insists that several New York physicians whom he consulted on this point, corroborated his belief. It may be that New York physicians being little likely to become involved in legal questions, do not devote as much study to medical jurisprudence as their rural confrères, but that many of them labor under the delusion that rape will never be followed by conception is simply incredible; we are forced to believe that our inquirer's friends misunderstood him. That such an idea may prevail among the laity is quite possible, for many of them have the weirdest notions concerning sexual matters; there are women past the climacteric, for example, who believe that there is a common opening into the rectum and vagina, a cloaca in fact such as exists in birds; and a very common belief is that they know the moment when conception begins. A little consideration, however, should serve to dissipate the delusion concerning the necessity for voluntary par-

ticipation in intercourse as a necessary preliminary to conception. If there was any such necessity, whence would come the demand for contraceptive methods? Nature has been much too cunning in her care for posterity to allow reproduction to depend on the will. A heavily narcotized woman can conceive as readily as one in full possession of her senses; since the pains of childbirth can be banished by narcotics, *à fortiori* so can the pleasures of intercourse. Briand and Chaudé insist that amorous women are less likely to conceive than those to whom intercourse is repugnant. The success of artificial fecundation in the hands of Gérard, many years ago, and more recently in those of German experimenters, serves further to clinch the evidence.

There will be, therefore, beyond any doubt, a tremendous influx of illegitimate infants into the war territory, beginning soon and extending to the usual number of months after the end of hostilities. As the German medical weeklies report that gonorrhea is a source of worry and dismay to the medical officers of the army, it is to be hoped that the unhappy hosts of illegitimate children will have at least the benefit of Credé's prophylactic collyrium, and not suffer from blindness in addition to their other troubles.

MEDICAL ADVICE IN THE LAY JOURNALS.

The medical profession have been slow to recognize the evil consequences of medical men editing "medical columns" for the lay press. Today the anxiety for a "remedy" among the readers of the lay dailies has assumed such proportions that matter for the medical column is being distributed by press associations and syndicates. It seems hardly possible that a reputable medical man should regard any such column with other than feelings of contempt; the evils of indiscriminate medical advice are well known, and need no recapitulation. But, of all forms, the medical column is the most degrading, the most liable to abuse, the least capable of being useful, and the one which subjects the physician to imputations so unjust, that it is with regret that we find the names of many distinguished medical men connected with the practice.

The practice of replying to anxious querists in the medical column is most harmful to the patient. The physician prescribes hesitatingly and only in the vaguest manner; and in reply to many correspondents he is, if honest, forced to advise "a consultation with your own physician." To say even this much, however, accentuates the evils inherent in the practice to which the physician gives the weight of his assent, the influence of his name, and the prestige of his connections. The persons who

write for medical advice are led to expect in reply a genuine answer; and in diluting the advice with general observations and medical platitudes, and only "some simple preparation of iron," "codliver oil," or a "small amount of quinine," a great deal of injury instead of good may be the result.

It is evident that in the gratuitous distribution of medical advice to the readers of lay journals on the strength of their own accounts of their cases, without the opportunity of personal examination, the physician brings his art and himself into contempt; it must not be forgotten that the physician who acts as medical editor for a lay journal is sitting in judgment on physicians who have had the opportunity carefully to study the cases of their patients, and is stating decidedly and publicly upon utterly insufficient data supplied by their patients, whether or not that treatment is judicious. The physician editor warns his readers that no diagnosis will be made, but this does not deter him from prescribing. Treatment without accurate diagnosis is blatant quackery.

This form of medical assistance cannot be regarded as either educational or philanthropic. The very poor either seeks advice at the outdoor dispensary, or is content to be humbugged by the real advertising charlatan; those who seek relief through the medical column are usually recruited from the moderately well-to-do and educated classes. There is no need for the medical column; the only efficient agents in spreading the gospel of health are public schools and health departments. Finally, when it is considered that the advertising medical charlatan distributes many of his wares through the guise of a medical column, the effect on the medical profession as a whole cannot be anything but damaging and degrading.

TUBERCULOSIS AND ITS TREATMENT.

Tuberculosis is a well worn subject, but the devastation wrought by the disease is so widespread, and its treatment so generally unsatisfactory, that recapitulation concerning any of its phases cannot but serve a good end.

In the first place, it may be said that views as to the diminution of the malady are to some extent conflicting. There are those who assert that the decrease of tuberculosis during the past few years has been remarkable, while others contend that, in reality, there has been little or no decrease, and that throughout the world the mortality from the disease is relatively as great as ever. Perhaps the truth lies between these statements; in some parts of the world the decrease has been decided, and in other parts the disease still holds sway with almost undiminished vigor.

In the *Lancet* for April 3, 1915, appears the first section of the public health report for 1913 of the medical officer of health and school medical officer of the administrative county of London. This report shows that in both sexes a marked decline has occurred in the London mortality from tuberculous phthisis. The experience of London is undoubtedly repeated in many cities in Europe and America, in which money is spent lavishly to afford every attention and care to the sufferers from tuberculosis. Where such attention and care are lacking, pulmonary tuberculosis continues to spread.

The successful treatment of consumption, according to the highest authorities, depends chiefly on an early diagnosis. When the disease is in the incipient stage, it is curable, but when it has passed that stage the result of treatment is always more or less problematical. In order to prevent its spread advanced cases must be isolated.

However, there are other means of treatment which are worthy of consideration. Among these is prophylactic inoculation. At a meeting of the section in medicine of the Royal Academy of Medicine in Ireland, Dr. W. M. Crofton read a paper on this method, and stated that general sanitary measures, while they kept down morbidity and mortality to a certain level, would not entirely prevent the disease. He believed that the only method was to render the soil unsuitable by prophylactic inoculation. Doctor Crofton described the technic and said that the experiment was innocuous, cheap, and easily carried out. With respect to tuberculin as a preventive of tuberculosis, it had not reached the expectations of twenty years ago, and although it could not be definitely said that it was useless, the majority of those who had used it were skeptical as to its value. Therefore, as now generally believed, the treatment of pulmonary tuberculosis resolves itself into early diagnosis and prompt treatment of incipient cases and the segregation of advanced cases in order to prevent spread.

SANITATION IN WORKSHOPS AND FACTORIES.

One of the most distinct menaces to the public health is the unsatisfactory sanitary conditions of the buildings and general surroundings of the great industries. Legislation to remedy these conditions has been on the increase for many years, but legislation is not a panacea. Betterment of unhygienic conditions must ultimately depend largely upon the workmen themselves. Factories are too plentiful for any reasonably sized corps of State or municipal medical inspectors to exercise the constant supervision which is required to keep up the standard

set by the most advanced legislation. The employer can be made to do his part by law, but no law can make the employee uniformly strict in the performance of his share in keeping the factory or workshop in proper condition. In order to effect the best team work between employee and employer two things seem to be required, first, a campaign of education and rules formulated by the employer and employees themselves; second, some form of sick and accident insurance. The cloak, suit, and skirt trades, and the dress and waist industries of New York city have organized a joint board of sanitary control in which employees and employers have voluntarily agreed to the establishment of rules which are even more strict than the law requires. This has been done because of a growing realization of the fact by the employer that sanitation spells efficiency in the employee. It would now be possible for a strike to be called because of violation of any one of the fourteen rules mutually agreed upon for the protection of the health and safety of the workers in these industries. Mutual cooperation of this kind is far more effective than legislation.

The value of compulsory sick and accident insurance as a sanitary measure lies in the fact that when some one is forced to pay a definite amount in actual cash for every case of sickness among the industrial workers, he who pays becomes active in the search for the cause and prevention of sickness. In Great Britain and Germany, where compulsory insurance is in force, there has been set in motion an enormous influence for the prevention of disease. The movement in Great Britain was at first greatly opposed by the medical profession, but once the differences between the doctors and Mr. Lloyd-George were adjusted, all parties benefited by the new laws. The annual income of the English physician is estimated to have been increased from \$750 to \$1,000; this increase means more work, but it also means that the mass of the people are receiving medical attention where formerly such services were far from being universal. Beside this increase in individual attention there has followed a general health survey of the British nation, with the result that the hygienic surroundings of the poor have been greatly ameliorated. There is no limit to the usefulness of proper and enlightened cooperation in promotion of the public health. This cooperation can find its most useful field between employer and employee, and between the medical profession and the State. As an example of the former, the Joint Board of Sanitary Control of the cloak trade and dress and waist industries of New York city, is worthy of emulation, while of the latter the medical relief act of Great Britain appears to be the best attempt so far.

MINERAL OIL AS A LAXATIVE.

Dr. Edwin L. Ash, of London, communicates to the *British Medical Journal* for April 3d, his views on liquid paraffin, or mineral oil, as a laxative. "It would be a thousand pities," he writes, "if the benefits of this valuable remedy were to be denied our patients without some very weighty reason. Taking, for example, the large army of sufferers from neurasthenic and psychasthenic conditions, liquid paraffin offers the most suitable means of combating the habitual constipation so prevalent in these disorders. Whatever may be the pathological basis of the common neuroses and psychoneuroses, there can be no doubt that the attainment of a clean colon is an essential part of successful treatment; and, speaking from a not inconsiderable experience, I have found the preparations of liquid paraffin a most valuable adjunct in the purifying process."

SURGEONS FOR THE SERVIAN ARMY.

According to *Presse médicale* for March 27th, the Servian legation at Paris has issued a notice to the following effect: Physicians desiring to serve during the war in the Servian army should apply at the consulate, 10 rue Auber, from three to five p. m. It appears that a minimum salary of 400 francs (\$80) a month will be paid, with traveling expenses both ways; except that return expenses will not be paid to those who serve less than three months. Men who obtain a medical post in Servia may practise their profession subject to the local regulations.

Obituary.

ERNEST P. MAGRUDER, M. D.,
of Washington, D. C.

According to a cable despatch, Dr. Ernest Pendleton Magruder died at Belgrade, Servia, on April 8th, of typhus fever. He was born in Upper Marlboro, Md., October 23, 1875, and was the son of C. C. Magruder, of Annapolis, clerk to the Maryland Court of Appeals. For four years Doctor Magruder was superintendent of the Emergency Hospital in Washington, and for five years professor of clinical surgery at Georgetown University. He is survived by a widow, the daughter of Sir Malcolm Magruder, of the same Scottish clan as her husband, and by two children. Doctor Magruder was an extensive writer of medical literature, and during the past four years contributed to the *NEW YORK MEDICAL JOURNAL* excellent articles on the treatment of fractures, uremia with terminal cerebral hemorrhage, infantile paralysis, etc.

News Items.

Change of Address.—Dr. E. Parrish, to 295 Clinton Street, Brooklyn, New York.

Union of Chicago Hospitals.—The union of the Post-Graduate, Polyclinic, and Henrotin Hospitals, of Chicago, is announced. The three institutions, which aggregate more than three hundred beds, will remain in their present locations, but will be governed by a combined board of directors.

The Section in Medicine of the New York Academy of Medicine will meet on Tuesday evening, April 27th, instead of April 20th as previously announced. Dr. T. Stuart Hart is chairman of the section and Dr. Nellis B. Foster is secretary.

A Contribution to the Belgians through the Journal.—Doctor Wheeler acknowledges with thanks the receipt from the Cumberland County Medical Society, of Portland, Me., of the sum of twenty-five dollars for the Belgian relief fund. The check has been forwarded to Dr. F. F. Simpson, of Pittsburgh, treasurer of the fund.

American Medico-Psychological Association.—The seventy-first annual meeting of this association will be held in Fortress Monroe, Va., on Tuesday and Wednesday, May 11th and 12th, under the presidency of Dr. Samuel E. Smith, of Richmond, Ind., immediately after the meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.

Epilepsy and Epileptics.—The fourteenth annual meeting of the National Association for the Study of Epilepsy and the Care and Treatment of Epileptics will be held at the Hotel Chamberlin, Fortress Monroe, Va., on May 10th. A program of interest to both physicians and laymen has been prepared. Dr. A. S. Priddy, of Lynchburg, Va., is president of the association and Dr. A. L. Shaw, of Sonyea, is secretary.

American Medico-Pharmaceutical League.—The eighteenth annual meeting of this organization of physicians, dentists and pharmacists will be held at the Hotel Astor, New York, on Monday, May 24th. Dr. Samuel F. Brothers, chairman of the executive committee, asks that those who desire to contribute to the program please forward to him at their earliest convenience the titles of their papers. Members of the State medical, dental, and pharmaceutical associations and other nonmembers of the league are invited to contribute. Doctor Brothers's address is 96 New Jersey Avenue, Brooklyn.

Beware of an Alleged Representative of the Victor Electric Company.—The Victor Electric Company, of Chicago, have issued a warning to the medical profession against a young man who falsely represents himself to be connected with the Victor Electric Company and as such has induced physicians to cash a personal check. He is reported to have done this in Terre Haute, Ind., and in Omaha and Hastings, Neb. He is described as a small man, apparently twenty-two years of age, and badly scarred. Any one knowing of his whereabouts is requested to send a telegram, collect, to the Victor Electric Company, Jackson Boulevard, Chicago.

A Health Conference to Be Held in Boston.—On Thursday, April 29th, a meeting will be held in Boston under the auspices of the Massachusetts State Department of Health and the Massachusetts Association of Boards of Health for the purpose of discussing the general subject of cooperation between boards of health and the reorganized State Department of Health. Every city and town in the State will be asked to send representatives to the meeting. Among the speakers will be Dr. Charles W. Eliot, president emeritus of Harvard University; Professor Irving Fisher, of Yale University; Miss Adelaide Nutting, of Columbia University, and Dr. Allan J. McLaughlin, State Health Commissioner of Massachusetts.

Surgeon General Gorgas Asked to Take Charge of Campaign against Typhus Fever in Servia.—The Rockefeller Foundation has invited Surgeon General William C. Gorgas, of the United States army, to become a permanent member of its staff in the capacity of general adviser in matters relating to public sanitation and the control of epidemics. If General Gorgas decides to accept the offer, he will be sent to Servia to direct the work of controlling the epidemic of typhus fever which is raging in Servia and which it is feared may spread to other countries of Europe, and possibly be brought to the United States. The Sanitary Commission of the American Red Cross has been sent to Servia in charge of Dr. Richard P. Strong, of the Harvard Medical School. The Rockefeller Foundation is co-operating with the American Red Cross in the support of this expedition, and if General Gorgas should accept the Foundation's offer he will doubtless be largely influential in determining the nature and extent of its participation in the work.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, April 19th, Philadelphia Clinical Association, Medical Society of the Woman's Hospital; Tuesday, April 20th, West Branch of the Philadelphia County Medical Society, Mount Sinai Hospital Clinical Society; Wednesday, April 21st, Philadelphia County Medical Society (business meeting), Section in Otology and Laryngology of the College of Physicians; Thursday, April 22d, Pathological Society, Northwest Branch of the Philadelphia County Medical Society; Friday, April 23d, Neurological Society, Northern Medical Association, South and Southeast Branches of the Philadelphia County Medical Society.

Personal.—Dr. Harold G. Goldberg, of Philadelphia, has been appointed ophthalmologist to the Episcopal Hospital, to fill the vacancy caused by the death of Dr. John L. Bromley.

Dr. T. Mellor Tyson, of Philadelphia, has been appointed a member of the Committee on Tuberculosis of the Philadelphia County Medical Society, taking the place of his father, Dr. James Tyson.

Dr. George Foster Comstock, of Saratoga Springs, N. Y., has associated with himself in the practice of medicine Dr. Carl Rodney Comstock, with offices at 540-542 Broadway.

Dr. Lawrence T. Aitken, of 169 Bergen Street, Brooklyn, who has been seriously ill for several weeks with erysipelas, is convalescing slowly and hopes to be able to attend to his practice in a month or so.

Dr. Hermann Grad has been appointed attending surgeon at the Woman's Hospital, New York.

Clinical Congress of Surgeons of North America.—The sixth annual meeting of this congress will be held in Boston, October 25 to 30, 1915. Plans for the session are well under way and a preliminary schedule has been prepared of operative clinics and demonstrations to be given in the hospitals and medical schools of Boston during the week. It has been decided to limit the attendance to a number that can be comfortably cared for, and advance registration will therefore be required. A detailed announcement of the plans for the Boston session will be sent shortly to all members of the congress and to surgeons who have attended previous meetings. Cards will then be issued in order of application up to the limit named by the committee. Dr. F. B. Lund is chairman and Dr. Lincoln Davis secretary of the committee on arrangements. The officers of the congress are Dr. John B. Murphy, president; Dr. Charles H. Mayo, president-elect; Dr. George E. Armstrong, vice-president; Dr. Herbert A. Bruce, first vice-president-elect; Dr. Robert L. Rickinson, second vice-president-elect; Dr. Allan B. Kanavel, treasurer; Dr. Franklin H. Martin, secretary-general; Mr. A. D. Ballou, general manager.

Death Rate Lower Than Last Year Despite the Grippe.—The increase in the mortality noted for the week ending April 3, 1915, continued during the past week and rose to even a greater height. The number of deaths during the past week was 1,934, an increase of 103 deaths over the preceding week. Both weeks of April combined showed an increased mortality of 550 deaths over the corresponding two weeks of 1914. This unexpected rise in the death rate has had as its principal factor the increased prevalence of a virulent form of influenza. The number of deaths during the past week from this cause was 47, more than two and a half times as many deaths than were charged to this disease in the corresponding week in 1914. The effect as usual of the greater prevalence of influenza was not only an increase in the deaths from the diseases of the respiratory organs which influenza particularly affects, but also a greater increased mortality in many of the chronic organic diseases.

The deaths from acute bronchitis, bronchopneumonia, and lobar pneumonia showed an increase of 173, chronic organic heart diseases one of 49 deaths, chronic diseases of the kidneys 37 deaths, diseases of the nervous system 16 deaths, diseases of the digestive system 35 deaths, and all forms of tuberculosis 16 deaths over the figures for the corresponding week last year.

Despite the unfavorable influence of grippe on the mortality, the health of the city this year compares very well with that of last year. The death rate for the first fifteen weeks of 1915 was 14.57 per mille of the population against 15.52 in the corresponding period of 1914, a decrease of 0.95 point.

Gifts and Bequests to Hospitals.—The following bequests are contained in the will of William Douglas Sloane, who died on March 19th: To the trustees of Columbia University \$50,000 for the Sloane Hospital for Women; one bequest of \$15,000 and another of \$7,500 to the Presbyterian Hospital; St. Luke's Hospital, \$7,500.

By the will of Mrs. Sarah Frank, Mount Sinai Hospital and the Montefiore Home will each receive \$1,000.

By the will of Marietta Flower, who died recently in Media, Pa., the Chester Hospital will receive \$5,000 in a single bequest and become a residuary legatee. This residue will amount to many thousand dollars, although the exact sum is not known at present.

Manslaughter By the Administration of Wood Alcohol.—Nicholas Karolis, a Greek garage helper, of 184 West End Avenue, New York, was convicted recently of the sale of anisette cordial which he had made from wood alcohol, the consumption of which caused the death of three people and blindness in two others. The defendant pleaded guilty to the charge of manslaughter and was released on a suspended sentence by Justice Page, who ordered him deported to Greece. Though this is the first instance in which a conviction has been had on the charge of manslaughter from the administration of wood alcohol, there have been many cases reported in which blindness or death has followed the use of small quantities of this liquid. During the past year six deaths and five cases of blindness have been reported in New York city alone from wood alcohol poisoning. In 1912, twelve were blinded and three killed. In New York it is illegal to sell wood alcohol at retail without first marking it poison. A similar law is in force in Rhode Island and efforts are being made by the Society for the Prevention of Blindness to have such laws enacted all over the United States, seven State legislatures now having such legislation under consideration.

Federal Control of Quarantine at New York.—The question of Federal versus local control of quarantine will be discussed at a meeting of the Public Health Committee of the New York Academy of Medicine, on April 20th. The following resolutions, of a nature which the NEW YORK MEDICAL JOURNAL has frequently indorsed, will be presented:

WHEREAS, Maritime quarantine, like oversea commerce, is not a matter of local but of national and international interest and importance; and

WHEREAS, The modern tendency in quarantine administration all over the world has been from local to national and international rules and regulations which insure uniformity of system and practice; and

WHEREAS, Quarantine work is essentially scientific in its nature, and cannot be carried on efficiently unless the tenure of office be independent of changes in administration and of politics; and

WHEREAS, The United States Public Health Service, by its organization, the character, training and experience of its personnel, and its opportunities for constant communication with all foreign ports, is admirably equipped to administer quarantine in a most efficient manner as attested by the satisfactory results obtained in San Francisco, New Orleans, Mobile, Manila and the fifty or more other stations administered by the service in the United States and its dependencies; and

WHEREAS, The history of local quarantine, including that of the port of New York, has shown that in times of crisis the local stations have been unable to cope with the situation without the assistance of the Federal Government; and

WHEREAS, There exists in Europe at the present time widespread quarantinable disease which will become a source of grave danger to this country when immigration resumes its usual course at the termination of the war; and

WHEREAS, The opening of the Panama Canal will bring New York into direct shipping contact with South American and Asiatic countries, thus increasing the possibilities for the introduction of endemic tropical diseases; and

WHEREAS, Of all ports of this country that of New York ranks first as a receiving station for foreign goods and immigration, as well as a distributing centre for the entire country; and

WHEREAS, The Federal Government controls all the services incident to the administration of the port of New York with the single exception of the quarantine, which is logically a part of the immigration service; and

WHEREAS, The United States as a party to international quarantine agreements cannot guarantee their uniform observance unless all quarantine stations are under Federal control; and

WHEREAS, The expenses for health protection, the benefits of which are shared by all parts of the Nation, should not be borne by one city or State; and

WHEREAS, All the ports of this country, with the exception of Baltimore and New York, for the reasons above cited, have already ceded their quarantine functions wholly or in part to the Federal Government;

Therefore, Be It Resolved, That the economical and efficient administration of the quarantine service and, above all, the safeguarding of public health, demand the transfer of the quarantine station of the port of New York from the State to the National Government; and

Be It Further Resolved, That the Governor of the State of New York be and hereby is respectfully and earnestly urged to take immediate steps to secure such transfer.

Why We Should Have a War against Cancer.—The Commission on Cancer of the Medical Society of the State of Pennsylvania has issued the following statement: It is a fact that cancer kills about 75,000 people in the United States every year. Any disease which causes such a high annual toll should command the careful attention of the Government, the medical profession, and the people. The need for this careful attention is all the more imperative if both the morbidity and mortality can be very largely reduced by cooperation on the part of these three forces, i. e., the Government, its people, and their physicians. The reduction that has been caused in tuberculosis is now a matter of history. There can be no doubt that similar well directed and persistent activity would cause a similar effect in cancer.

The key to the reduction of cancer mortality lies precisely in this: That cancer always begins as a purely local disease involving a strictly limited area. Second, that this limited area is accessible in about four fifths of all cases; and third, and most important, a commencing cancer practically always indicates its presence when it is still in its early, locally limited, and permanently curable stage. In other words, the enemy that we have to fight is not the cancer, but the delay. Nearly 60,000 of our people die every year, not because they have cancer, but because they have waited till the cancer became incurable.

The causes for delay are, first, that the people know little or nothing about cancer. The layman or laywoman does not know that certain evident signs and symptoms mean that cancer is insidiously creeping on them and will be fatal unless recognized and checked in time. So that a large proportion of our 60,000 unnecessary cancer deaths occur because the people do not know. If a woman has a right to kill another human being to save her own life when attacked, how much more has she the right to know that a fatal disease has begun its attack on her? A woman who loses her life at forty simply because she never knew that irregular vaginal bleedings indicated the presence of a cancer while it was in its early curable stage, certainly has not had her fair chance at the hands of civilization. If our people are dying because they do not know, we, the doctors, must teach them. We must teach women that a lump in the breast, no matter how small or how painless, may be the starting point of a serious condition and must at once be investigated by a competent physician. We must teach women that irregular vaginal bleeding, the onset of a discharge, etc., may be early warning symptoms of cancer of the uterus. We must teach all people that a mole or a wart which begins to grow, bleed, or ulcerate, is a danger sign that must be heeded at once. There are similar early signs in other portions of the body that may forewarn people, and of which they should have accurate knowledge.

There is also a great field in the conditions marked by chronic irritation and the so called precancer lesions. Recent statistics show that in about forty per cent. of cases the cancer, the malignant disease, was preceded by long continued simple diseases or by some form of chronic irritation. In other words, a large proportion of cancerous people need not have had the disease at all if they had been forewarned and had their precancerous condition cured.

The second great problem lies with us as medical men. Are we as active in the treatment of precancerous diseases as we should be, or do we only too often put our patients off with some placebo and advise them not to worry? Do we always insist on a thorough examination when a patient comes to us with symptoms that may mean cancer? When an early cancer is present, do we always lay proper emphasis on the necessity for proper treatment at once? Do we not too often advise the one course which can lead to disaster and tell our patients to wait and see what develops, i. e., wait till the cancer becomes inoperable? Unfortunately at the present time these questions must be answered to our disadvantage. A recent extensive investigation has shown that on an average the family physician has had his cases of cancer under observation for about a year before they come to a real attempt to cure the disease. Our attitude to cancer needs to undergo a radical change. The average of one year's observation must be cut down to a few weeks, or, best, to a few days. Immediate attention to the precancerous condition, counsel in the doubtful cases, and immediate action in the positive cases, is the only proper service we can give our patients. To do this, we need a campaign among ourselves, too. A new and

more efficient spirit must be created which will result in constant watchfulness to keep our patients from swelling the thousands of untimely and unnecessary deaths from cancer.

To arouse the profession fully to the necessities in the war against cancer, a movement has been started by which, during the present few months, State and County Societies all over the country are devoting special meetings to the study of cancer, and in addition, the vast combined influence of American medical journalism has been enlisted, and the NEW YORK MEDICAL JOURNAL has united with several other medical journals to provide for its readers special cancer numbers. It would seem from the number of journals cooperating that the message must be brought directly to every medical man. We are sure that in this way the interest of the medical profession will be aroused for years to come, and we are sure that the time will be soon at hand when no blame for participation in the fatal delay can ever be laid at the door of an American physician. Our special issue will appear early in July.

The Belgian Relief Fund.—Dr. F. F. Simpson, treasurer of the Committee of American Physicians for the Aid of the Belgian Profession, announces the following contributions received during the week ending April 3, 1915: Dr. John Lewis Stevens, Mansfield, Ohio, \$5; Hoquiam Surgical Club, Hoquiam, Wash., \$10; Dr. J. D. Griffith, Kansas City, Mo., \$5; Dr. Philip F. Williams, Philadelphia, \$5; Visiting Nurses' Association of Chicago, Chicago, \$12; Dr. Burnley Lankford, Norfolk, Va., \$5; Dr. Irene M. Morse, Clinton, Mass., \$3; The Homochitto Valley Medical Society, Natchez, Miss., \$14.25; Dr. T. L. Macdonald, Washington, D. C., \$10; The Yankton District Medical Society, Yankton, S. Dak., \$50; Dr. James D. Voorhees, New York, \$25. Total, \$144.25.

During the week ending April 10, 1915, the following contributions were received: The Cooke County Medical Society, Gainesville, Texas, \$15; The Sedgwick County Medical Society, Wichita, Kansas, \$25; Dr. Carl B. Davis, Chicago, Ill., \$10; Dr. R. C. Dorr, Batesville, Ark., \$5; Anonymous "J," New York, \$5; Dr. George Leonard Schadt, Springfield, Mass., \$5; Dr. Mark T. Goldstine, Chicago, Ill., \$10; Dr. Lomax Gwathmey, Norfolk, Va., \$25; Dr. J. C. Chipman, Sterling, Colo., \$5; Miss Grace Hutchison, Canton, N. Y., \$2.25; Dr. Brooke M. Anspach, Philadelphia, \$5; Dr. J. B. Haskins, Chattanooga, Tenn., \$15; Dr. Fred W. Phifer, Wheatland, Wyo., \$5; Dr. Henry P. Brown, Jr., Philadelphia, \$10; Dr. Floyd W. McRae, Atlanta, Ga., \$10; Dr. William L. Rodman, Philadelphia, \$25; Anonymous "F," St. Johnsbury, Vt., \$10; Dr. Joseph P. Murphy, Brooklyn, N. Y., \$5; Dr. Rudolph Matas, New Orleans, La., \$25; Dr. Neal N. Wood, First Lieutenant, M. C., U. S. A., Schofield Barracks, Hawaii, \$5; Cumberland County Medical Society, Bridgeton, N. J., \$10; Gonzales County Medical Society, Gonzales, Texas, \$10. Receipts for the week ending April 10th, \$242.25; also one box of surgical instruments sent to the American Commission for Relief in Belgium, through *Surgery, Gynecology, and Obstetrics*, without name of donor and without a list of contents.

Ill Advised State Legislation.—Dr. C. F. Taylor, editor of the *Medical World*, has written the following letter in pursuance of his campaign against foolish anti-medical legislation:

PHILADELPHIA, April 7, 1915.

Senator George H. Whitney, Chairman of Committee on Public Health, Senate Chamber, Albany, N. Y.:

DEAR SENATOR—My attention has been called to Assembly Bill No. 671, introduced by Mr. Bloch, which requires that a physician cannot dispense any medicine until after he has first made a physical examination of the patient. This must certainly be very loose language to insert into any law, as who shall judge what a "physical examination" is? It may vary from a single thump on the chest to the most thorough examination in every way. Hence, such a law would be practically useless. Then why interfere with the ancient and humane privilege of the physician to use his own judgment in treating his patients, and in dispensing medicines to them? Is there any occasion to do so? Will such interference be any advantage to the public? It will certainly be a great and unwarranted annoyance to the medical profession. Thanking you in advance for kind attention to these matters, I am,

Very sincerely yours, C. F. TAYLOR.

HEMADENOLOGY:* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M. D., LL. D.,
Philadelphia.

(Fifth Communication.)

THE THYMUS (*continued*).

In the two preceding communications (NEW YORK MEDICAL JOURNAL, March 20 and April 3, 1915) we analyzed the pathogenesis of precocious senility. Progeria, that form of precocious senility met with in children, was attributed to insufficiency of the thymus attending fibrosis of this organ following hypertrophy. This condition was shown to present various evidences of thymic insufficiency—deficient bone growth with dwarfism, denutrition of the system in general, including the hair, nails, skin, etc. The genesis of the senility in these cases was then traced to deficiency of the thymic nucleins, owing to the lowering of tissue oxidation this entails, oxidation of the nuclear phosphorus being a fundamental feature of the nutritional process. The thymus was thus shown to be an integral feature of early precocious senility. In other words, the data submitted appeared to me to have shown that while under normal conditions it supplies an excess of nucleins to the body as long as its growth and development require it, *untimely inhibition of the functions of the thymus when growth and development have started normally, causes not only cessation of development* (owing to the deficient cellular oxidation this entails) *but also the degenerative changes in the vascular system and atrophic changes in all tissues which constitute senility*, the predilection of the vascular system to such changes being due to the abnormal demand for nucleins its ceaseless contractions impose. In other words, as Jacques Loeb put it, "the oxidative activity had fallen to too low a point" to sustain tissue life adequately in those tissues.

What is the bearing of this thymic form of precocious senility upon the familiar precocious ageing in adults in the light of the foregoing facts?

The calendar can no longer, if modern knowledge is taken into account, be accepted as a reliable standard in the age of any individual. This is emphasized in early life by the cases of progeria described, in which the "three score and ten" limit had been reached, as regards tissue changes, at eight and fifteen years respectively. In old age it is shown by the life histories of Petraz Czarton, who lived 185 years; Joseph Surrington, who died at 160 years, leaving among his children one aged 103 years, and another aged nine years; Thomas Parr, who lived 153 years, and many other well authenticated instances which attest to the possibilities of our tissues as to longevity. While these are extreme examples, they in a measure portray what may be witnessed any day—individuals at sixty or seventy as alert as many at fifty or less—the familiar instances of

"green old age." Precocious senility is an abnormal state, therefore—a pathological condition which it will undoubtedly be possible to prevent some day, i. e., when all the attributes of the ductless glands, metabolic and defensive, have been brought to light. Of commanding importance in this connection is a feature upon which I have laid stress many years, viz., that *all ductless glands directly or indirectly sustain tissue oxidation*. It is only when this neglected side of their functions has been duly apprehended and its many ramifications have been conscientiously fathomed analytically, that serious progress will be made in the prevention of the ubiquitous forms of senility, those which strike ninety-nine per cent. of all men.

Returning to the thymus, its share in the problem is that it gives an insight into a phase of the pathogenesis of premature old age which so far has remained obscure. We have long known, for example, that senility is attended with arteriosclerosis—the origin of Cazalis's dictum that "a man is as old as his arteries." In the cases of progeria or precocious senility described, this phenomenon is extremely marked. In Rand's case, for example, that of the girl eight years and three months old, whose appearance is that of a woman of seventy-five years, especial attention is called by him to the "rigidity of the radials" and to the fact that the cardiac signs indicate that the heart "is evidently working against a relatively inelastic arterial system." In Gilford's case the same condition of the arteries prevailed, there being, besides, advanced atheromatous and calcareous degeneration of the aorta, coronaries, and mitral valves. Judging from a sign denoting resistance to the arterial circulation, clearly defined in both these cases and which, in fact, can be detected even in the illustrations in the two preceding communications (Figs. 1 and 2 in the issue for March 20th and Fig. 2 in that for April 3rd), viz., marked turbulence of the superficial veins so often noticed in old people, Mr. Hutchinson's patient also suffered from arteriosclerosis. It becomes apparent, therefore, through the role of thymus in progeria, that *an important cause of premature old age is sub-oxidation, however produced*.

We shall return to this question later after all the various internal secretions have been reviewed, and point to measures which will tend to preserve the integrity of the ductless glands and, therefore, that of life's fundamental mechanism.

For the present we shall limit ourselves to the main question which analysis of the influence of the thymus in the ageing process had for its object to elucidate, viz., the actual role of the organ in the body at large. In order further to elucidate this all important question, we shall now take up other disorders in which the thymus takes an active part, infantile marasmus, idiocy, and others.

*Hemadenology, from the Greek: αἷμα, blood, ἀδην, gland, λόγος, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

THE THYMUS IN INFANTILE MARASMUS.

Our analysis of precocious senility, as exemplified by its most intense form, progeria, has prepared us for that of marasmus—the athrepsia of Parrot, also termed infantile atrophy—a disease of which L. Emmett Holt (1) writes: "In my own experience in four institutions [for infants] more than one half the deaths under one year were directly or indirectly from this cause. Marasmus is a very large factor in the immense infant mortality of large cities in summer." We are dealing, therefore, with a disease of the first magnitude in death dealing attributes—one which modern methods of investigation have not served to explain since, as well stated by Sheffield (2), "the nature of this appalling infantile wasting is still shrouded in mystery." I have long urged that *practically all the most fatal diseases remain such because their intimate connection with the ductless glands, direct or indirect, is being neglected.* Infantile marasmus is a case in point, owing to the character of the participation of the thymus in this morbid process.

As previously stated, a number of clinicians have urged the importance of the thymus in the pathogenesis of marasmus. Royal Stokes, Ruhräh, and Rohrer (3) closed their original paper on the subject with the following conclusions: "1. Atrophy of the thymus gland is always found in infantile atrophy. 2. The condition of the thymus is an index of the general nutrition in infants. 3. The state of nutrition of infants may be estimated by a microscopic examination of the thymus at autopsy." That these deductions rested upon a firm basis of trustworthy observation in eighteen autopsies of marasmic infants in undoubted. In all the cases examined, the thymus gland was found much wasted and atrophied, the average weight in sixteen cases being only 2.2 grams. This presents a great contrast to the weight of the thymus in normal children, which averaged about eighteen grams. The microscopic examination showed great thickening of the fibrous capsule of the gland and of the interlobular fibrous tissue. The thickened bands between the lobules contained numerous veins and arteries, and the adventitia of these vessels seemed to thicken and increase the interlobular connective tissue, which was richly infiltrated with spindle shaped connective tissue cells. The reticular endothelium was increased and the lymphocytes were decreased in number. Then followed an *almost entire disappearance of the lymphoid structure of the lobule*, to be later shown in illustrations.

If, in the light of these striking changes—the only morbid lesions found in the subjects brought to autopsy—we review the symptomatology of marasmus, we cannot but conclude with Stokes, Ruhräh, and Rohrer, and also with Friedleben (1858), that "the size and condition of the thymus is an index to the state of nutrition of the body," since in every instance this organ was the only one found atrophied.

In sufficiently advanced cases the body is extremely emaciated, the bones, especially the joints, projecting prominently. The skin is wrinkled and hangs in folds, especially over the extremities. This condition affecting the face, the little patient recalls a miniature very thin old person with mummylike,

dry, yellowish, or leaden features. The temples are hollow, the fontanelle is sunken, the bones frequently overlap. The cry is feeble, the movements are slow and infrequent, the stringlike muscles of the extremities being often found rigid as if there was actual spasm of the cervical muscles—opisthotonos occurring, in fact, in some cases. The respiration is feeble and the temperature low, reaching occasionally down to 93° F. in the rectum, and even less in the axilla. The hemoglobin is usually greatly reduced—at times to twenty per cent. or less—a fact which accounts for the hemic murmurs, the intense pallor, and the edematous swellings witnessed.

The alimentary canal is more or less affected, some cases showing little if any digestive disturbance. While anorexia prevails in most instances, in others the infant is voracious, but the stools are unusually large in proportion to the amount of food taken. In the majority, vomiting occurs at once on the ingestion of food, and the infant may refuse to take all foods, whether from spoon or bottle, and may die of starvation, unless rectal feeding or gavage is resorted to. Intestinal disorders with diarrhea and colic and some fever are often witnessed; during the hot days of summer, these may suddenly prove fatal. Complications such as thrush, bedsores, cutaneous disorders of the nature of intertrigo about the genitalia and buttocks, desquamation, ecchymosis, etc., are common. Death may occur as a result of progressive failure, some catarrhal disorder of the alimentary tract, convulsions, bronchopneumonia or bronchitis, or some other intercurrent disease, or the infant may suddenly or unexpectedly die without having shown a single premonitory danger signal.

The etiological relationship between the degenerated thymus and the marasmic atrophy thus seems plain.

Yet, with such advanced changes in the gland as were found by Stokes, Ruhräh, and Rohrer, it seems but rational that the administration of thymus gland to the marasmic infants should be helpful. This did not prove true. In twelve cases thymus was given three times a day, starting with one grain and increasing until the dose had reached three grains of the dried gland. No appreciable change was noticed, either during the administration or after the use of the gland was discontinued. Again, marasmus occurs almost never in breast fed infants. Indeed, as Emmett Holt puts it, the story most frequently told at the hospital is that "at birth the baby was plump and well nourished, and continued to thrive for a month or six weeks while the mother was nursing it; at the end of that period, circumstances made weaning necessary. From that time the child ceased to thrive. It began to lose weight and strength, at first slowly, then rapidly, in spite of the fact that every known form of infant food was tried." Now, if marasmus was due to insufficiency or arrest of thymic functions as a result of a degenerative change, we should hardly expect marasmic infants to recover promptly when artificial feeding is dropped and breast milk is restored to them; yet such is frequently the case. As stated by Wentworth (4), "it has been demonstrated clinically many times that these infants gain in weight and in every other way with astonishing rapidity when they

are fed on breast milk." In one of my own cases, remarkable improvement occurred within twenty-four hours.

In the presence of these facts, it is self evident that the thymus cannot play the *primary* role in the pathogenesis of marasmus. Nor should the changes depicted by Stokes, Ruhräh, and Rohrer be interpreted as permanent lesions, but rather as temporary phases which all thymus glands undergo under certain conditions. As we shall see, *the thymic changes are due to the absence in the food supplied the infant, of agents which prevent thymic "atrophy"*—at least the condition of the thymus usually interpreted as such. As well said by Woolley, of Cincinnati, in a recent number of this JOURNAL (5), in reference to the involution of the organ: "Mere abundance of food does not affect the growth of cells. It is the *qualitative composition of the fluids of the body*¹ which calls forth reproduction. The thymus atrophies because the chemical stimulus which made it active is no longer present in the blood."

What is the nature of this chemical stimulus?

Before entering upon this question, it is necessary to recall that it is not alone in marasmus that the relative mortality of artificially fed infants is high. The fact that this rarely excusable departure from the rules of nature favors the development of practically *all* diseases of infancy, and is responsible for seventy-five per cent. of the deaths that occur during the first year of life from nutritional disorders, sufficiently emphasizes the importance of the question in point. In a paper published some years ago on the immunizing properties of maternal milk, L. T. de M. Sajous (6) collected data which bring within the limits of criminal responsibility those who unwarrantedly deprive an infant of the one food which, better than all, protects its life. In Berlin, as previously stated by Abraham Jacobi, the mortality in babies fed on cow's milk has been found six times as great as among the breast fed. In 1870, during the siege of Paris, the infant mortality had been lowered forty per cent., because mothers had been driven to nurse their babies for lack of cow's milk, although in the same period the general mortality in the city had been doubled (Winters 7). In one of the French departments, Bertillon had reported a death rate of 900 per mille in infants under one year artificially fed. Further, while in French cities in which foundlings were breast fed the death rate was 337 to 350 per mille, in those in which these infants were fed artificially the deaths ranged from 502 to 800 per mille. According to Jones, the mortality of breast fed infants in Wurtemberg is 13.5 per cent., while in those artificially fed it is 42.7 per cent. Many years previously, J. Lewis Smith had urged that the death rate among foundlings in New York city reached almost 100 per cent. until wet-nurses were provided.

The morbid influence of artificial feeding on the mortality among infants from gastrointestinal disorders is no less striking. Davis (8) found, in a study of the relative mortality between bottle fed and breast fed infants in Boston, that the former were six times as likely to die as the latter. Holt collected 1,943 fatal cases due to digestive disturbances, and found that only three per cent. of these

had been exclusively breast fed. Jones (9) showed by statistics that forty-two per cent. of the deaths among infants in England were due to digestive disorders, whereas in Norway and Sweden, where almost all the children are breast fed, only ten per cent. die from these causes. The same author observed that out of 718 fatal cases of infantile diarrhea occurring in Liverpool, only thirty infants were breast fed, while 391 were raised entirely on artificial food, and 297 were partly nursed and partly fed on artificial food. Newman (10), in an analysis of 54,047 deaths among infants in Germany from gastrointestinal diseases, found the death rate among infants fed on cow's milk three times greater than among those that had been breast fed.

There can be but little doubt, therefore, that the great relative mortality among infants during the first year of life is closely related with their mode of nutrition, and that in analyzing the identity and source of the stimuli which influence the thymus in such a way as to produce "atrophy" of this organ in marasmus, we are in reality studying the whole problem concerning the protective influence of breast milk upon the infant. Another feature which requires attention before we can proceed with our inquiry into the nature of the chemical agent which endows the thymus with its physiological activity, is the nature of the changes which Stokes, Ruhräh, and Rohrer characterize as "atrophy."

By "atrophy," as usually interpreted, is meant wasting of a given structure with permanence as a feature of the process. If, however, the exact meaning of the term, that doubtless understood by Stokes, Ruhräh, and Rohrer—a diminution of the size of that structure through deficient nutrition—is adopted, all the apparent discrepancies in their conception of the process involved, disappear. It then conforms with the physiological fact that *starvation, fatigue, or any wasting disease causes a very marked decrease in the size of the thymus*. The confirmatory testimony of L. R. Dudgeon (11), after an extensive inquiry, also finds its normal place: "Atrophy of the thymus glands," writes this pathologist, "was the most characteristic morbid lesion found in cases of marasmus, but it was also present in any chronic wasting disease, such as tuberculosis; atrophy of the thymus and wasting of the tissues were usually found to go hand in hand." This accounts for the fact that thymus gland failed totally to arrest the lethal trend in the cases of marasmus in which Stokes, Ruhräh, and Rohrer tried this agent; *food nucleins in suitable form and quantity were lacking*; it explains also the curative effects of breast milk in these cases: *food nucleins in suitable form, and before endogenous chemical changes had occurred were furnished, out of which the thymus replenished its supply*.

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(To be continued.)

¹The italics are my own.

Pith of Current Literature.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

February 20, 1915.

Theory and the Practical Importance of the Wassermann Reaction, by W. von Gonzenbach.—This paper, which began in the number for February 6th, adds little to what is already known. While a positive reaction indicates syphilis as present in the body, it does not prove that a certain lesion is specific. This is demonstrated in a large number of cases. An interesting point with reference to the extent to which syphilis occurs is given in the statement that of 10,193 cases investigated, the test proved negative in 61.4 per cent.

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT

March 9, 1915.

Treatment of Typhoid Fever by Intravenous Injections of Albumoses, by Hermann Luedke.—Deuteroalbumose was used intravenously in the treatment of typhoid fever. One c. c. of two to four per cent. solution was injected into twenty-two patients, nineteen of whom were greatly improved. The temperature dropped by crisis in seven cases; in three cases the temperature reached normal in two to three days, and in nine cases in from five to eleven days. Half an hour after the injection the patients usually complained of a chill, a rise of temperature of from one to two and a half degrees C. took place, lasting from four to eight hours. This was followed by a decided reduction in the temperature, which was accompanied by profuse perspiration, symptoms of cardiac collapse, vomiting or diarrhea being absent. The agglutinating power of the blood was not influenced. The drop in temperature is not an anaphylactic phenomenon as animal experimentation has shown that bacterial anaphylaxis is just as specific as the reactions with serum. Four of the patients had relapses which lasted only a few days. Peptone was used in place of the deuteroalbumose, but the results were negative.

Ruptured Intestine through Dilatation by Compressed Air, by Stauff.—The patient was a boy in whom a tube had been introduced into the rectum and air under pressure forced into the bowel. Three hours later he was brought into the hospital and presented the following signs and symptoms: Cyanosis, rapid and shallow respiration, anxious facial expression, perspiration over the entire body, borders of lung pushed up, rapid heart action, distended abdomen, intestine not being visible, and tympanites all over; temperature 37.2 C. Patient complained of pain in abdomen. A laparotomy was performed and numerous ruptures along the descending colon were found. The entire transverse colon was split open. A large portion of the large intestine was resected and the abdomen was cleaned of feces, a Mikulicz tampon being inserted. The patient died on the following day and the autopsy showed the presence of peritonitis. The rupture of the entire transverse colon may be thus explained: Here the large bowel is most firmly fixed by the various ligaments; the damming back could not pro-

ceed with sufficient speed because of the strong action of the valves.

Iron-elarson, by H. E. Schmidt.—This is a preparation of iron which contains a small amount of arsenic in combination with a fatty principle. The greater part of it is not dissolved until it reaches the intestine where it is absorbed. It is put up in small tablets, each tablet containing 0.0005 arsenic and 0.03 ferrum reductum. The dose of iron is small, but its action is increased by being given in combination with arsenic. This is of especial value in the treatment of chlorosis. The preparation is also used with considerable success in the treatment of chorea. It is well borne by the stomach, improves the appetite, and causes an increase in weight. The stimulation of the peristaltic action of the intestine observed in cases where arsenic is given alone does not take place when this preparation is administered as the small dose of iron apparently paralyzes this action of the arsenic. The dose is one tablet three times daily, increased to three tablets three times daily. It has also proved of value in dermatology; acne, psoriasis, eczema, lichen ruber, and mycosis fungoides being greatly benefited by its administration.

WIENER KLINISCHE WOCHENSCHRIFT.

March 11, 1915.

An Interesting Gunshot Wound, by Marion Maresch.—The patient had been brought to the hospital; diagnosis, gunshot wound of the thorax. Examination showed a wound of the posterior aspect of the thorax three fingers' breadth to the left of the spinal column, measuring six cm. in length and four cm. in width. The upper border reached to the angle of the scapula. From here a hematoma reaching to the left mammary line could be palpated. Under the left breast a distinct resistance could be felt, but it could not be definitely outlined because of the size of the hematoma. Under local anesthesia an incision was made in this region and a piece of shrapnel removed. This had traveled almost half the circumference of the thorax, entering posteriorly and finding its way along the eighth, ninth, and tenth ribs until it came to rest under the left breast.

Treatment of Severe Frostbites, by Viktor Pranter.—Report is based on the observation of 105 cases. The lower extremity was involved in most, the upper extremity alone being rarely affected. When this occurred it was usually the terminal or second phalanges which suffered. Two groups are recognized: In the first and larger group there are swelling, redness, pain, paresthesia, and slight disturbances of the sensibility, formation of blebs and, finally, localized deep seated processes which may cause the loss of a terminal phalanx; in the second and smaller group, including the more severe cases, there is necrosis of the toes or of the deeper soft parts or bones. It is not always possible to tell from the appearance of an extremity how far the process has advanced and the prognosis is uncertain in most cases. Sepsis is seldom seen in gangrene due to frostbites. The cases reported were treated conservatively from a surgical standpoint, only two amputations of the lower extremity, at the level of the lower third of the thigh, being performed. Other

operative procedures consisted in the removal of affected soft parts and bones, such as toes and portions of the feet to the region of Lisfranc's or Charcot's line. Methods of treatment employed were alternate hot and cold baths; carbon dioxide baths, and hot and cold air douches. Wet dressings of pepsin-hydrochloric acid were used in a number of cases causing rapid separation of necrotic material. Faradism and hot air were not employed. The extremities were kept at rest and elevated and sterile gauze with boric acid salve was applied to the necrosing portions.

Influenza Complicating Typhus Fever, by Richard Paltauf.—Autopsies performed on patients dying of typhus fever showed the existence of a purulent bronchitis. Smears were made revealing the influenza bacillus. In some cases it was found in pure culture; in others, mixed with large diplococci, probably meningococci. Influenza bacilli were also found at the autopsy in a case of dysentery, the lung showing the same purulent bronchitis as the other cases. The presence of an influenza epidemic would account for the fact that certain observers have described the beginning of typhus with symptoms of influenza. The late appearance of the rash—on the twelfth day in one case—is explained by the occurrence of typhus which made its appearance during the course of the influenza. The combination of influenza and typhus would also aid the theory of some authorities who state that the infection can be carried through the air and who advise the wearing of inhalers and masks. That the infection can be transmitted only by infected clothing has been repeatedly asserted.

PRESSE MÉDICALE.

February 18, 1915.

Treatment of Fractures of the Humerus, by Rigot.—Splints made of sheet lead are serviceable in the treatment of compound fractures of the humerus, especially in its upper third, complicated by abundant purulent discharge from the external wound. A sheet of lead five mm. thick is moulded as a cap over the shoulder and brought down along the anterior, external, and posterior aspects of the arm, down to the elbow. Lateral cuts in the sheet at the level of the shoulder permit of bending it down in this region. The splint is kept in place by a spica bandage, and extension is instituted by attaching a one to three kilogram weight to a figure eight bandage passed around the elbow. In the author's cases the lead splint was removed at each dressing, sterilized by pouring alcohol over it and burning the alcohol; it was replaced, with the greatest ease. The results obtained, controlled by x ray examination, were excellent.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

January, 1915.

Gastrointestinal Disturbances and Weakness of the Abdominal Muscles in Pulmonary Tuberculosis, by Tecon.—Atrophy of the abdominal muscles is a cause of gastrointestinal disturbance in tuberculosis. While general muscular atrophy is very frequent in tuberculosis, Tecon finds it more marked in the abdominal muscles. A gradual ptosis of the viscera takes place, which is favored by the

general atony of all muscle tissue caused by prolonged toxemia and the frequent shaking of the viscera by the diaphragm in coughing. The use of an abdominal belt or other support often brought symptomatic relief, but as it favored further atrophy, systematic exercises were adopted. Exercise chiefly consisted in lying on the floor, with the feet held down under a piece of furniture, and in raising the trunk from the horizontal to the vertical position with the arms extended, at first five times on rising in the morning, then, by a gradual increase in two weeks to two months, up to fifteen times, avoiding all fatigue. The recti abdominis were first to recover their normal vigor. As the muscles became stronger, the gastric symptoms and constipation disappeared or improved in all instances. In each of the five illustrative cases reported, a gain in body weight was noted. In one instance dysmenorrhea was also relieved by the exercises.

Treatment of Gaseous Gangrene, by A. Van Emden.—Combined application of two therapeutic principles in this affection is recommended: 1. Ample access of air, to inhibit the microorganism responsible; 2, cauterization, to excite a defensive reaction on the part of the tissues. Long, deep incisions and secondary incisions should be made, and all the exposed tissues should be cleansed with absorbent cotton. The thermocautery, at red heat, should then be carried systematically into the depths and over the walls of the cavities, and slipped under the skin in the cellular tissues. A linear series of cauterizations should be made around the wound; these generally prevent extension of the disease. Hydrogen dioxide solution should then be copiously used to irrigate the wound; cotton wet with hydrogen dioxide is packed in it, and replaced later by drains as the wound recesses tend to narrow. Covering the affected region with a folded towel dipped in fifty per cent. alcohol was found of distinct value. Over this a layer of dry absorbent cotton and a few turns of bandage were applied. The dressing was changed daily, but cauterization renewed only on the second day, and thereafter less extensively, until the tissues had resumed their normal appearance. With the procedure described recovery was obtained even in cases seemingly desperate on admission.

RIFORMA MEDICA

March 13, 1915.

Researches on Narcosis by Intramuscular Injections of Ether, by B. Formiggini.—This method was first introduced by Broca in 1912. The dose depends on three factors: First, susceptibility of the subject; second, the degree of anesthesia desired; and, lastly, the duration of the anesthetic process. The ordinary method of calculating the dose of ether is to allow as many grams of ether as there are kilograms of body weight. The site of injection is the buttocks. It is better to give the ether in divided doses repeated after intervals of a few minutes. The injection is extremely painful and at first produces a feeling of general malaise. There is also in this first stage nausea and nystagmus. When anesthesia has reached the surgical stage the respiration is slow and regular, the pulse strong and slightly accelerated, the face is pale and muscular relaxation complete. There is also complete absence of

salivation and bronchial secretion. Formigini from extensive experimental work arrives at the following conclusions: It is impossible always to estimate the susceptibility of the patient and the weight is not a trustworthy guide to the dose required. The anesthesia cannot be limited nor can its action be suspended if desired. It is not always possible to obtain complete surgical anesthesia. The violent pain at the site of injection may endure for several days. Epileptiform crises may be produced as also cyanosis, partial asphyxiation, palpitation and vomiting. There may be also produced pigmentation, ecchymosis, and deep hematmata, as well as hemoglobinuria and albuminuria. Finally, there may be a fatal termination either with or without epileptiform convulsions.

BRITISH MEDICAL JOURNAL.

March 27, 1915.

Epidemic Cerebrospinal Fever, by Edward C. Hort, C. E. Lakin, and T. H. C. Benians.—That the meningococcus of Weichselbaum is the specific organism seems at first sight a warrantable belief. The authors point out, however, that on a closer analysis the evidence is far from conclusive; they suggest that recent observations make a new investigation necessary. The proportion of patients in the early stages of the disease who harbor the meningococcus in their upper respiratory passages is very high, yet the attendants upon such patients seldom contract the disease. There are from ten to fifty carriers for every case yet only a very small proportion of these acquire the disease. Monkeys injected with cultures of the organism elsewhere than into the spinal canal or subdurally do not acquire meningitis. Agglutination tests against the organism are often negative. Lastly, the organism shows marked cultural instability. The fact that cure may follow the intraspinal injection of certain serums is not proof that the disease is due to the organisms against which the serums were made, and there is evidence that spinal puncture alone may cure in many instances. While particularly avoiding positive statements as to the importance of their observations, the authors record finding in the urine of a number of patients minute organisms which upon culture underwent a transformation into an organism resembling the meningococcus and *Diplococcus crassus*, described by Jaeger as the cause of epidemic meningitis. They suggest that this small form, which will pass through a Berkefeld filter, may be the pathogenic stage of the organism and that the meningococcus as we commonly know it may be either a later and nonpathogenic stage or a symbiotic organism. These observations agree with the recent discovery by the same authors of a minute organism which is probably the causative agent of typhus fever and which passes rapidly into a larger nonpathogenic form.

Treatment of Painful Frostbite, by W. Charles Davis.—The most satisfactory remedy that the author has found consists of cocaine, eight grains, olive oil, four drams, and lime water, four drams. Twice a day a small amount of this preparation should be rubbed into the feet thoroughly, particular attention being given to the toes. The feet are then to be wrapped in cotton wool. The addition of one

ounce of liquid paraffin to four ounces of the preparation improves it by preventing too rapid drying, and by delaying oxidation. After the oil has dried on the feet, they should be dusted with a powder of the following composition: Camphor twenty-five grains, and zinc oxide and powdered starch half an ounce of each. With the recovery from the acute stage the oily mixture is mixed with equal parts of carbolated oil, the percentage of which is to be increased as the pain in the feet decreases.

LANCET.

March 27, 1915.

Typhoid and Paratyphoid Infection, by Georges Dreyer, E. W. Ainley Walker, and A. G. Gibson.—The several methods which have been introduced and advocated for the isolation of typhoid and paratyphoid bacilli from suspected carriers when these are present in relatively small proportion are discussed and their shortcomings brought to light. A new method is described, consisting briefly in the exposure of plate cultures of the suspected material to the action of actinic rays for varying periods of time. This method kills off the other organisms more rapidly than those which are sought and subculture can then be made from the remaining colonies. By this new procedure the authors have been able to isolate the typhoid and paratyphoid organisms when present in mixtures containing between fifty and 200 organisms of the colon group for each one of the typhoid group. This has enabled them to prove the existence of carrier cases where such were passed as non-carriers by the former methods, a matter of considerable practical importance in the prevention of these diseases.

Bacteriology of the Urinary Tract in Children, by Athole Ross.—This story includes the examination of 106 catheter specimens of urine from children in varying conditions of health and disease. Among specimens obtained from nineteen normal children eleven were sterile and eight grew a form of *Staphylococcus albus*. This organism resembled one not infrequently found on the skin and, as the organisms were present in small numbers only and often only in the first portion of the specimen withdrawn, it is suggested that they were contaminations from the urethra which were picked up in the eye of the catheter in these cases. In a series of forty-three children with some febrile condition the urine was found to contain the colon bacillus. Sixteen per cent. of these cases occurred in boys, the remainder in girls. It would seem that a considerable proportion of the cases were due to an infection from without by way of the urethra, although a small number probably arose from direct passage of the organism from the colon into the bladder. This latter course of infection would seem to occur only when the patient's resistance had been impaired by some infection elsewhere. Among the conditions in which it was found were summer diarrhea, pneumonia, diphtheria, tuberculous peritonitis, etc. In a considerable proportion of the cases there was no evidence of cystitis obtained from microscopic examination of the urinary sediment and the condition was probably one of bacilluria only. In nineteen other cases the proteus bacillus was cultivated from the urine, but in only one of these cases

was there any evidence that the organism was pathogenic—a case of acute cystitis. From twenty-five pathological urines a white staphylococcus was isolated similar to that found in the normal patients. An interesting observation was that there were a certain number of cases of summer diarrhea associated with edema of the extremities. In all of these cases either the staphylococcus or the colon bacillus was isolated from the urine. The staphylococcus was also found in the urine from a case with acute sore throat and rheumatic pains, and was found to be identical with *Micrococcus deformans* of Crowe.

JOURNAL OF LARYNGOLOGY, RHINOLOGY AND OTOTOLOGY.

January, 1915.

Otogenic Pharyngeal Abscess, by Dan McKenzie.—Septic infection of the retropharyngeal lymphatic nodes, in association with suppuration of the ear, is by no means uncommon, particularly in infants. Even in adults, unilateral swelling of the postpharyngeal wall is not infrequent in suppuration of the middle ear, the infection taking place either through the petrous bone or more commonly through the suboccipital region. The close proximity of the pus to the inferior maxillary division of the fifth nerve in the former route is responsible for neuralgic pains, and may also induce spasm or paralysis of the muscles of mastication. Untreated cases are subject to the risk of the deep cervical abscess finding its way into the thorax and causing death from mediastinitis and general sepsis.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

March, 1915.

Involvement of the Central Nervous System in Syphilis, by Arthur W. M. Ellis.—The writer thinks it evident that infection of the central nervous system occurs in many cases of secondary syphilis, possibly in every case. Since we know that it is exceptional for involvement to appear in the late stages of the disease, this infection must undergo spontaneous resolution in many cases, which is in keeping with the course of syphilis elsewhere in the body, and is probably due to the altered tissue reaction, or allergy, that develops during the secondary stage as the result of prolonged contact between parasite and host. As a result of this altered tissue reaction, the secondary eruption disappears, and skin lesions may never be manifest again, even though the patient remains untreated. Moreover, if skin relapses do occur, they steadily change in character. The lesions are at first almost universal, but with each relapse become more localized, tend to group, and involve deeper structures until the gummatous stage is reached. Frequently a long period of complete latency ensues between the secondary eruption and the development of tertiary lesions. The process in the central nervous system would seem to be similar. Following the initial inflammation, the organisms deposited in the meninges during the period of septicaemia are usually destroyed, but in some cases they remain latent, becoming active only after a period of perhaps many years. In other cases relapses occur during the second, third, or fourth year of the disease, when it is untreated or treated poorly. The nervous lesions

so frequent after the use of salvarsan are not due to the action of the drug, but to the destruction of the main mass of spirochætae before an immunity has developed in the individual, while a small focus, safely tucked away in the tissues of the nervous system, has escaped destruction and develops with great rapidity and severity.

Pyelitis as a Complication of Pregnancy and the Puerperium, by B. P. Watson.—There are four main lines along which treatment may be directed: 1, Administration of urinary antiseptics; 2, administration of alkalies in cases of *Bacillus coli* infection; 3, the use of vaccines; 4, catheterization of the ureter and flushing out of the pelvis of the kidney, or the application of some germicide to it. The writer has had good results from the use of one or more of the first three methods and has never had to resort to the fourth. He first tries hexamethylenamine in doses of ten grains three times a day, combined with twenty grains of hyoscyamus if there is irritation of the bladder. A careful examination is made of the urine, its reaction determined, and the organism identified; if the latter is in pure culture a vaccine is made. If the reaction is acid and no improvement results from the hexamethylenamine, the latter is stopped and the administration of potassium citrate begun; fifteen grains every four hours at first, increased five grains at a time until the urine is alkaline when voided. Thirty or forty grains every four hours may be necessary to accomplish this.

The Boas-Oppler Bacillus (Lactic Acid Bacillus) and the Diagnostic Importance of Its Presence in the Gastric Contents, by Graham Chambers.—The results of the writer's experience indicate that these bacilli are present in the great majority of cases of cancer of the pylorus in which there is absence of free hydrochloric acid in the gastric contents; that they are frequently present in malignant ulceration of the stomach, in which there is absence of free hydrochloric acid in the gastric contents, and that this may be so whether pyloric obstruction is present or not; they are also found in a considerable proportion of the cases of gastric cancer in which a small amount of hydrochloric acid is present.

INDIAN MEDICAL GAZETTE.

February, 1915.

Is there a Primary Lesion in Leprosy? by A. Gwyther.—Gwyther analyzes over five hundred cases and concludes that there is in leprosy a primary lesion which appears a considerable time before the generally accepted manifestations of this disease; unfortunately, primary lesions are so small and insignificant that they have hitherto been overlooked. This primary lesion usually takes the form of a patch of anesthesia, a small blister, or the two combined, and occurs most frequently in those parts of the body which are most exposed to injury. A definite period of time elapses between its appearance and any secondary manifestation, varying with the type of the disease. In many cases there are distinct rigors, not accompanied by rise in temperature, between the primary and secondary manifestations. The secondary manifestations appear either

rapidly, or slowly and gradually, according to the type of the disease.

BOSTON MEDICAL AND SURGICAL JOURNAL.

April 1, 1915.

Menace of Syphilis to the Clean Living Public, by J. Harper Blaisdell.—For the purpose of finding out how definite a menace individual cases of syphilis may be to the community, sixty cases in the early stages were selected as they happened to come to the skin department of the Boston Dispensary, and the relation of their infectiousness to their associates was studied. The results of this investigation are shown in a table that includes sex, age, marital relation, occupation, duration of the disease in weeks, symptoms, methods of living and eating, number of coitions since infection, number of persons definitely exposed through family life, or association in boarding houses, number of coworkers exposed, and the number of known infections from the case in hand. No attempt was made to record the number exposed by casual contact, as by eating in the same restaurant, being waited on in a store, or consuming food handled by an infected person. These sixty cases had exposed through coitus between their infection and their appearance in the clinic 134 people. Four hundred and forty-two others were in contact with them in family and boarding house life. Six hundred and fifty-one fellow workers had been brought in contact with them sufficiently to run a definite danger of contracting the disease. Four of these sixty cases were extragenital and probably innocent. One of these, a man cook in a restaurant, had a chancre of the finger and his infection probably came from some dish or glass used by a syphilitic. Of the 576 people exposed through coitus or family life five were known to be infected, four through intercourse, one child through being kissed; of the 571 equally possible infections nothing is known. The danger of syphilis to the community, as well as to the individual, is increased in proportion to the inadequacy of treatment received, and investigation shows that patients make little effort to follow up even the most elementary treatment when left to themselves. Twenty-eight per cent. of the patients who entered the clinic with active symptoms of syphilis never returned; seventy per cent. made less than five visits, a number insufficient in most cases to relieve the symptoms; after the first few months the syphilitic patients as a whole averaged only twenty-five per cent. of the visits required for minimum efficient treatment. Out of these sixty cases only two were brought under medical care. These sixty infected at least five others, but no effort was made to trace infections in over five hundred equally good possibilities. We are absolutely ignorant as to the prevalence of this disease, but the writer begins his paper with this succinct statement of a fact: "Every community is divided into two classes of individuals—those who have syphilis, and those who are exposed to it." We cannot know how many there are in the former class, how many of them endanger their associates daily, or how many with lesions on the hands are engaged in the preparation of food, until all cases of syphilis are reported promptly to the local health authorities.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

April 3, 1915.

Cerebrospinal Fluid in Health and Disease, by C. H. Frazier.—In all forms of meningitis, apart from repeated lumbar puncture to relieve tension, there are no other measures than the use of specific serums. He has yet to see a case of tuberculous meningitis of acute type terminate favorably when pressure was relieved by decompression; nor has he seen or heard of any cases of suppurative meningitis being cured by drainage of the cisterna magna. The so called serous or aseptic form, however, presents very positive indication for relief of pressure by such operative measures as subtemporal or suboccipital decompression. Vomiting, headache, and papilloedema, as symptoms of brain tumor, are the expression of hypertension within the cranial chamber, but this hypertension is never, or certainly rarely due to the mere accession to the contents of the chamber of the tumor itself. Almost without exception it is the result of excess of cerebrospinal fluid distributed throughout the subarachnoid space. Unquestionably, increased intracranial tension in tumors is the result of a secondary hydrocephalus, whatever the position or nature of the growth; but tumors, irrespective of their size, character, or seat, may exist without signs of tension. Subtentorial growths show signs of increased tension earlier, because for patent reasons they interfere more readily with absorption of cerebrospinal fluid. The excess of the fluid in brain tumors cannot be explained on a physical basis, that is, only as a problem of absorption; in these tumors there are also found evidences of hypersecretion—perhaps an expression of disturbed brain metabolism. Here palliative treatment resolves itself largely into the problem of dealing with the associated hydrocephalus, and hence, accompanying decompression or preceding it, puncture of the corpus callosum should always be thought of. In hydrocephalus, long the *bête noire* of the neurologist and the surgeon, the phenolsulphonephthalein test (employed by injection into the ventricles) is of great value as a guide not only to pathogenesis, but also to treatment. Of the many methods of draining in the nonobstructive cases, Frazier speaks hopefully of the one he has proposed, that of draining the basal cisterns into the pleural cavity.

Treatment of Hemorrhoids by the Open Method, by J. R. Pennington.—Since the primary cause of the different types of hemorrhoids is practically the same, and the difference in structure only one of degree, the treatment of each variety is technically the same. In the thrombotic pile, after the patient is prepared and the tumor anesthetized (infiltration anesthesia only is necessary in this variety), an ellipse commensurate with the size of the pile is removed from the covering of the clot, the latter picked out, and the dressing applied; the wound being dressed with rubber dam covered with gauze or petrolatum and gauze, and a T bandage. There is little or no after pain, and the patient is well in a short time. In internal piles it is first necessary to bring the piles into view, and this is done by means of four T forceps, after gently stretching the sphincter.

ter.—Pressure *vis a tergo* is made at the base of each pile, forcing it into the field of operation, and an ellipse varying with the size of the swelling removed from the covering of the varicosity by means of scissors curved on the flat. Frequently this procedure also destroys the pathological condition; if it does not, this is readily accomplished by another and deeper cut with the scissors. The fleshy pile is treated in a similar manner. A section is excised from the apex, and then the inside of the pile is removed with the flat curved scissors. Sufficient of the mass is removed to have the anal region assume a normal surface after the operation. When, as is sometimes the case, a ring of flesh completely encircles the anus, and extends beyond for an inch or more, this is removed in the same way. The field is then cleared of blood clots, and a rubber covered tampon, which dresses the field in extension, introduced into the rectum, after which hot wet dressings, a piece of protective, and a snugly fitting T bandage are applied. The dressings and tampon are removed in from eighteen to twenty-four hours, the hot fomentations being continued, and six or eight hours later an enema of three ounces of olive oil and a laxative are given. Hot fomentations are applied every four to six hours, and the patient is usually discharged on the third or fourth day.

Paralysis of the Ungual Phalanx of the Thumb from Spontaneous Rupture of the Extensor pollicis longus: Drummer's Palsy, by J. R. Hunt.—This affection is very rare. The term "drummer's palsy" is a poor one, and misleading, for the lesion is not neural, and hence not a true paralysis; nor is the condition confined solely to drummers. It results from rupture of the tendon of the extensor pollicis longus as it emerges from beneath the posterior annular ligament of the wrist, and trauma and a variety of occupations have been found to be the cause of the accident. If evidences of union do not appear after a brief period of fixation of the part, function can be restored only by a tendon operation.

MEDICAL RECORD.

April 3, 1915.

The Relation of Hernia to the Workmen's Compensation Law, by A. V. Moschowitz.—In most instances the injury is so manifest that there is no question of the validity of the claim. A claim, however, may be in perfectly good faith for a "malady" which, in the mind of the claimant, was the result of an injury, but which cannot be regarded as due to trauma; the most common instance is hernia. Traumatic hernia is exceedingly rare. It is possible, however, for it to occur in any part of the abdomen, though usually not at the site of the normal hernial openings. Nontraumatic hernia, on the other hand, is frequent, and it occurs at certain definite and predestined locations caused by weak areas in the intraabdominal fascia. Workmen's compensation commissions are not and cannot be acquainted with all the facts relating to hernia. This is evidently the sphere of the medical profession, and such commissions should be required to place implicit reliance in these matters upon the decisions of established medicine. In cases of appeal from the verdict of the commission, all the medical part

of the testimony should be by experts selected by the court, and not by the claimant or defendant.

A New Nonoperative Treatment of Disease of the Accessory Sinuses of the Nose, by L. A. Coffin.—As the result of certain observations it occurred to the author that it would be possible to make use of Nature's abhorrence of a vacuum for the introduction of remedies into the sinuses. Accordingly, he had constructed an apparatus of such a character that he could at will produce in the nose and its accessory cavities either a negative or positive pressure, and also change immediately from one to the other. By means of the positive pressure obtained from an oxygen tank he was able to throw medicated vapor well into these cavities. That the current of oxygen enters the cavities is proved by this fact: After all the pus or mucus which can be obtained by the suction process has been taken from the cavities, and the nasal chambers proper have been thoroughly cleaned, one may by using for a time alternating and pressure currents obtain a great deal more pus. The pressure current seems to sweep it off the walls of the cavities, as it were, and into such a position that the suction current can pick it up.

Drug Eruptions, by W. P. Cunningham.—The diagnosis of a drug eruption, with few and well defined exceptions, does not rest upon the form it assumes, as nearly all of them may assume any form, but upon the abrupt and diffused onset without apparent cause. This applies, of course, to eruptions from within. Most of the external causes are easy to trace; failure to do so is attributable in most instances to a want of thoroughness in the interrogation. It should be a routine procedure in the case of every dermatosis to discover everything about the habits of the patient, and everything out of the ordinary which has taken place.

Dangers of Impure Air, by Horace Greeley.—The actual oxygen content of the air in our cities, outside or within our closed houses, varies, under ordinary circumstances, little from the normal; and even should there be a marked difference in this respect between city and country air, an increased rate of respiration, such as takes place when we ascend to any considerable elevation, would make up the deficit without appreciable harm to our health, as is plainly shown by the well known salubrity of mountain resorts. We have particularly to guard against the impurities added to the air by our commercial and personal activities. Factories, through their furnaces, add many gaseous compounds which, if inhaled, are poisonous to the blood, and similar gases escape from sewers, putrefying refuse, house fires, and even our bodies. As the temperature of air rises, its capacity for water greatly increases, and while out of doors it readily obtains the latter, within it may become very dry and irritating to the air passages, as, in becoming saturated on its way to the lungs, it absorbs more water than the upper respiratory tract is normally able to supply, and leaves a trail of dust behind, which the lining cells are unable to dispose of. It is particularly in connection with its association with disease germs that dust is dangerous. In rooms in which a sufferer from disease, or in which any carrier of specific germs in nose, mouth, or throat,

coughs, sneezes, or expectorates, the dust is usually infectious. Even though the specific germ may not always accompany the dust, the latter, through mechanical irritation, destroys the protective cells lining the respiratory tract, and renders subsequent invasion easy. All common colds, so called, are due to an infectious process produced by a rapid extension of growth of microbes already present, permitted through a lowering of the body's special resistance or through contagion, either direct or through the medium of dust. Impure air may influence the general health in so many little ways, and over such long periods, that the sum total often makes all the difference between disease and health. The importance of a continual supply of fresh air to our lungs, even more necessary to the sick than to the well, should be strongly emphasized, and the public constantly reminded that its lack is a contributing cause to many cases of illness, some of which could never occur without its aid.

AMERICAN JOURNAL OF TROPICAL DISEASES AND
PREVENTIVE MEDICINE.

February, 1915.

Larval Cestode Found in a Breast Tumor at Operation, by J. T. Moore.—In a man aged forty-seven years, a firm mass, the size of a small hen's egg, was found beneath the left nipple, together with a smaller mass just below and to the outer side of the nipple. The axillary glands were palpable, and cancer was suspected. Radical removal of the breast was performed, and on examination of the mass in the pectoralis major a white tapelike, motile parasite, coiled directly between the muscle fasciculi, was found. When at rest the worm measured 21.5 cm. in length. It was identified as *Sparganum mansonii*, the first instance of this parasite reported in the United States, most previous cases having occurred in Japan. The parasite often lives in the genitourinary tract; painful urination is a common symptom. Several patients had severe pain, with swelling and redness, in the region of the eye, e. g. in the conjunctiva. Incision into the migratory swellings should be made, to disprove the presence of the *Sparganum*. Where the worm is found and can be carefully extracted, the tissues heal readily.

ANNALS OF OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY.

September, 1914.

Tuberculosis of the Middle Ear, by H. H. Briggs.—Tuberculous infection through the alimentary tract unquestionably occurs in a large proportion of cases; the source, however, is not always food; dust, reaching the air passages, is often swallowed in the saliva and nasal secretion. Since primary tuberculous infection of the middle ear is regarded as respiratory rather than alimentary, the middle ear must be considered to be, anatomically and bacteriologically, a part of the upper respiratory tract. Infection may occur through the Eustachian tube, the blood channels, the lymphatics, via the external auditory canal and as an extension of an intracranial infection. Notwithstanding the various associated symptoms more or less characteristic of the condition, the only positive means of determining the diagnosis is by finding the bacillus microscopically in the discharge or granulation, the

presence of giant and epithelioid cells and caseation in the tissue, and by the reproduction of tuberculosis by experimental inoculation.

Aural Complications in Typhoid Fever, by E. M. Holmes.—Not only is lateral sinus thrombosis frequently mistaken for typhoid fever, but it is a comparatively frequent complication of this disease, and probably no complication has been so frequently overlooked. An early and positive diagnosis is of the utmost importance. A hypersensitivity of the jugular sheath is a very valuable sign, but its absence does not eliminate the possibility of a septic sinus or of a jugular phlebitis. The possibility of this grave condition complicating typhoid fever makes it extremely important carefully to watch the ears during an attack of this disease.

Vaccine Treatment of Furunculosis of the Ear, by H. Beattie Brown.—During the preparation of the autogenous vaccine, which takes two days, the author frequently gives an initial dose of a pure staphylococcus aureus or albus, a vaccine prepared and kept on hand in the laboratory. If the offending organism corresponds to the organism of the vaccine used in the first treatment, and if there has been an alleviation of the symptoms and an improvement in the general condition of the ear, the stock vaccine is continued; in other circumstances the autogenous preparation is substituted.

Pemphigus of the Mouth and Throat, by Robert Sonnenschein.—Pemphigus of the mucous membranes shows not intact vesicles, but ragged, grayish white, macerated membranes, smooth, red or granulating erosions. There may be thickening of such structures as the epiglottis, of the true or false cords, or at times ulcerations, which later produce scars and distortions. Lesions may be located anywhere in the mouth and upper respiratory tract. As a rule the process spreads from the mouth downward into the pharynx, larynx, or even trachea and bronchi. The rapid changes in the appearance of the lesions, the healing in one place with the development of new areas in another spot, are, together with the history of pain in the mouth and throat, loss of weight and strength, quite characteristic. The early appearance of lesions in the mouth and throat gives an exceedingly poor prognosis. The treatment appears to be of little avail.

ANNALS OF SURGERY.

February, 1915.

Iliohypogastric Nerve in Inguinal Hernia, by C. N. Dowd.—A terminal branch of the iliohypogastric nerve of considerable size is exposed in the operation for inguinal hernia when the aponeurosis of the external oblique muscle is split and laid open. This branch is easily severed or otherwise injured in the operation. This injury is usually unimportant, security against relapse of the hernia depending, however, on the vitality of the parts to which this nerve goes; its injury should be avoided. The percentage of recurrences after operation for the cure of hernia is small, but the total number of recurrences is considerable since so many operations are done. In the effort to lessen the number of relapses, proper suturing is more important than the preservation of the nerve, but the nerve surely has a definite influence and should not be sacrificed.

Forearm Fractures in Childhood, by Penn G. Skillern, Jr.—There is a fracture of the lower third of the radius and ulna which is peculiar to childhood and which constitutes about thirteen per cent. of fractures of the forearm. This fracture commonly occurs before the age of puberty, is most frequently encountered during the summer months, and is caused usually by the effects of gravity plus momentum. It is characterized by complete fracture of the radius with dorsal and lateral displacement of the lower fragment and by incomplete greenstick fracture of the inner half of the ulna, usually at a higher level, the outer half remaining intact and maintaining the deformity of the ulna, which is a bowing of the lower fragment toward the radial side and which, in turn, maintains the displacement of the lower fragment of the radius. In reducing this fracture, the aim must be to convert the incomplete greenstick into a complete fracture by forcibly rupturing the still intact outer fibres, thereby enabling restoration of alignment of the lower fragment of the ulna with that of the axis of the bone, the lower fragment of the radius coincidentally shifting itself automatically into position. The criterion of reduction is the restoration of the normal alignment of the inner border of the ulna. Fracture of the lower third of both bones and of the radius alone comprises seventy per cent. of fractures of the forearm in childhood. The site of the fracture and its variety may often be predicted by a knowledge of the history and mechanism of the fall. Injuries to epiphyses, whether strain, sprain, or disjunction, should be recognized and treated as fractures because of their importance in the growth of the bones and because epiphyseal injuries often predetermine infections, typically tuberculous. Diagnosis may be established clinically by the mechanism and wincing tenderness. If deformity exists, it is unjustifiable to elicit further signs of fracture. Skiagraphs are of corroborative value but by no means the final arbiters. Their chief value is in showing the degree of deformity and its presence after reduction. Owing to the delicacy of the radius and ulna in childhood, fracture is the rule, while contusion and sprain are the exceptions. Treatment is begun with the administration of an anesthetic if deformity exists; or a carefully prepared and padded splint is applied firmly and without undue pressure. Skiagraphic control of reduction is important. Massage and passive motion are adapted to the individual case. The splints must be removed as soon as there is firm union. Operation is indicated only when conservative treatment is admittedly a failure.

The Reformation of Gallstones after Operation, by E. M. Stanton.—If no foreign body is left in the gallbladder or ducts after the operation, the reformation of gallstones is so rarely observed as to constitute almost a negligible factor in gallbladder surgery. The reported cases do not bear out the assumption that cholecystectomy affords a much greater immunity against reformation of calculi than does cholecystostomy. Adequate care should be exercised not to leave threads from gauze sponges or unabsorbable suture material in the gallbladder or ducts at the close of the operation. The data consulted have further strengthened the author's belief that the two most important factors in determining

the end results of gallbladder surgery are the complete removal of the calculi and the maintaining of sufficiently prolonged postoperative drainage. In the absence of organic duct strictures he believes that the question of cholecystostomy versus cholecystectomy is largely one of technical expediency in individual cases.

JOURNAL OF NERVOUS AND MENTAL DISEASE

March, 1915.

Progressive Vagus Glossopharyngeal Paralysis with Ptosis, by E. W. Taylor.—A clearly defined disease exists, not hitherto described, consisting of ocular ptosis and paralysis of deglutition, which comes on after the fiftieth year of life; being fatal without further involvement of the nervous system. The affection is to be classed among the family diseases, as is shown by the fact that it has occurred in two generations, in the second affecting all but one of those who reached the age of fifty years. It is peculiar in that although hereditary in type, it has not been known to occur in early life, and must therefore be regarded as superinduced by conditions arising in the degenerative period of life in predisposed persons. It occurred in precisely the same form in all of the persons affected.

Puncture of the Corpus callosum as a Decompressive Measure, by Charles A. Elsberg.—Elsberg has performed this operation thirty times, and is so pleased with it that he considers it the operation of choice in mid brain tumors, in unlocalized intracranial growths, in subtentorial neoplasms in which a palliative operation is to be done. It is only a palliative measure, but the relief it gives is often immediate and great.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, Held at the New York Academy of Medicine, December 1, 1914.

(Concluded from page 761.)

The Vice-President, Dr. E. G. ZABRISKIE, in the Chair.

Dementia præcox (continued).—The second case was that of a typical dementia præcox make-up. But in this case the subject broke down, not under the demand for adult love, but when his father died. A manic depressive personality would have developed a retarded depression, but in this case the subject developed a crude infantile sexual trend. At first glance it looked as if the principle of the two cases was very different, but much similarity was in evidence. In the first case, the patient broke down because he was unable to meet the demands of adult love; he was unable to do that on account of his infantile tendencies. In the second case, no demand was made, but the infantile tendencies became suddenly inflated through the death of the father, i. e., his rival. The patient presented a very infantile trend, a cosmic formulation, of having relations with his mother, of being his father, and of recreating himself with his mother. The principle, however, that the make-up, the precipitating cause, and the content of the psychosis were closely connected

and worked all in the same direction, was again evidenced in this case as well.

The third case of dementia præcox showed a very marked incapacity for adult love which stood distinctly in the foreground, and was rather more marked than the general shut-in tendencies. No definite precipitating cause was demonstrated; but the patient showed an interesting feature which formed a parallel to the precipitating causes, especially that of the second case of dementia præcox reported. He changed his habits after his father's death, began to wish to appear more manlike, drank, and became an agitator. The inflation which the unconscious tendencies received after the death of the rival was in this case not transformed into psychotic symptoms so much as into fairly well adapted habits—in other words, sublimated. He got an outlet in mere association with men, in drinking with them, and in becoming a revolutionary spirit. His trend was essentially a homosexual one. Aside from the usual homosexual accusations, his ideas chiefly were that he was changing into a woman. Here, as in the first præcox case, one of the typical escapes from real love destiny was chosen, the path of unreal adult love, that of homosexuality. In this case the trend and the make-up were the result of the same tendencies.

The following points were brought out: First, that the adaptation defect in the sexual sphere, although it might express itself in a complete shunning of all sexual relationship with the opposite sex, might often not lead to any marked repression of mere sensual sexuality, but might gravely interfere with the capacity to meet the demands of adult love—i. e., marriage. This was a trait not confined to dementia præcox, but was one of the ways in which, as Freud has shown, the defect of sexual adaptation might manifest itself in any neurotic individual. The first case reported was a good example of this. Second, that when they fully appreciated the internal unconscious meaning of the defect of sexual adaptation—namely, the fixation in an infantile state of attachment to the parent of the opposite sex—it was clear that the peculiarities of make-up, the nature of the precipitating causes, and finally the content of the psychosis were very closely related, in that they all were dominated by the incapacity to fulfil the demands of adult love, and the desire to get away from this. The trends described in the cases here reported were either a direct expression of the desire to avoid marriage, or they represented an escape in the sense of homosexuality, or they were directly of the nature of plain infantile sexuality.

Doctor HOCH stated that it seemed to him valuable to bring out the points which Doctor Treadway had just developed, by demonstrating the possibility of viewing the make-up, the precipitating cause, and the ideas expressed by the patient (the so called content of the psychosis) from a common point of view, namely, from that of an underlying defective development of instincts. After the earlier studies on make-up in dementia præcox, which had led more to a surface description of the essential traits of the constitutional abnormality, it had more recently become possible to demonstrate that the stunted development of the adult love instinct represented an

important component of the make-up of dementia præcox cases, and that this inadequate development also showed itself in the ideas expressed by the patient, which betrayed motives belonging to an earlier stage of development.

Doctor MACCURDY, seeing a significant point, that of the workman who as soon as he had finished his apprenticeship, found it impossible to go on doing his work, said that a striking thing in this instance was that no difficulty whatever had been experienced with the work until a time was reached when the training was finished and the man had reached an independent position; everything went smoothly until that particular period was reached which, according to the confession of the patient, was identified with the assuming of a certain responsibility—that is he was now a worker for a higher wage and could afford to marry. Confronted by the removal of all obstacles that heretofore had deterred him from this step, which he seemed to consider a duty, he suddenly found it impossible to do the same sort of work which he had been doing before to the satisfaction of those who employed him. Evidently, at the time of the breakdown, the work was no longer viewed as a thing in itself, but rather was unconsciously considered in the light of its associations. A knife which a man carried around with him, using it to cut his bread, or sharpen a pencil, was of course to be regarded as simply a knife. But when a man felt that the knife *must* be carried, through the force of some compulsion he would be at a loss to explain, which filled him with a feeling of gone-ness if he did not have it with him, then, to him, the knife had ceased to be a mere knife, and had assumed an importance that could be explained only as being symbolic. So, in the case under discussion, it seemed reasonable to conclude that the illness came, not from any strain directly attributable to the work itself, but rather from conditions which in the patient's mind had become identified with the finish of his apprenticeship and the obtaining of an independent position in life—conditions which, since he felt it impossible to meet them, put in motion the associated feeling of an inability to go on working, as he heretofore had done.

Doctor CLARK's comment upon one of the cases presented in Doctor Treadway's paper was, that if it was true that the primary fault in dementia præcox was due to an inherent inability in the individual to adapt to the socialistic tendencies of adult life, and particularly to the main purposes of a proper marriage, then was it not possible for them to see some therapeutic advantage in this conception? If one might be fairly certain of this position, why not arrange the lives of the præcox to the simpler adolescent tasks whose trends did not lead essentially into situations that called for these impossible demands? Industrial occupations, shop, farm, and garden work and life led apart from the temptations for heterosexual life, might conserve the præcox from the deterioration consequent from being measured up to a standard he could not meet. This position would possibly render stationary the cases which were first made quiescent by hospital treatment; but to be fully effective, the præcox would have to be diagnosed and placed under treatment early, whereas at present only too frequently he

was not even seen by physicians. The early detection of the sinister import of the shut-in type of personality in adolescence was imperative, as they gained a truer insight into the essential pathogenesis of the disorder. All agencies dealing with children should be keenly aware of some of these newer studies in order that the conservation principle of treatment might be applied.

Letters to the Editors.

ADDING INSULT TO INJURY.

CHICAGO, April 1, 1915.

To the Editors:

In your issue of March 6, 1915, you publish and copy-right an article entitled Spinal Anesthesia in Gynecology, by H. J. Boldt, New York.

This paper was read before the Chicago Medical Society in Chicago, January 26th, and as such was the property of the Chicago Medical Society and published by the *Medical Journal* in the February, 1915, issue.

As no credit was given to the *Medical Journal*, we wondered if this were your usual method.

[A few of our readers may possibly have noticed this unauthorized appearance in a Western State journal of Dr. H. J. Boldt's communication on Spinal Anesthesia in Gynecology. Doctor Boldt, knowing the rule of the NEW YORK MEDICAL JOURNAL as to exclusive publication, handed his manuscript to the secretary of the State society before which it was read with the promise that the journal was to publish *only an abstract of it*—a proviso which Doctor Boldt informs us was distinctly and unequivocally acceded to. When Doctor Boldt, to his astonishment, subsequently received from this journal a galley proof of his communication he sent an "imperative order" (his own words) not to publish. We do not think that even the desperate straits in which some of the smaller journals find themselves for copy afford any excuse for this violation of the ethics of journalism and deliberate and insulting disregard of the written wishes of an honorable practitioner and writer.—Eds.]

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Story of Bethlehem Hospital From Its Foundation in 1274. By EDWARD GEOFFREY O'DONOGHUE, Chaplain to the Hospital, Formerly Stapeldon Scholar of Exeter College, Oxford. With 140 Illustrations. New York: E. P. Dutton & Co., 1915. Pp. xx-427. (Price, \$5 net.)

A pleasant surprise awaits the reader of this book who anticipates nothing more than a dry parade of statistics and dates. The chaplain, for whom this volume was evidently a labor of love, became so saturated with the spirit of the old manuscripts that he unearthed, that his own style acquired a naive and gossipy flavor that is quite irresistible. Bedlam, as it is popularly known, can undoubtedly lay claim to be the oldest asylum and hospital in the world. So old is it that its first 300 years of existence had more than once become legendary and its foundation was attributed to Henry VIII. It was in 1247, however, that the priory of St. Mary of Bethlehem was founded, Henry III taking part in the ceremonies of consecration. It was supported at first by begging friars and later by patients who had been cured therein taking up the soliciting of alms. The treatment of the insane in those early days seems to have been humane and not very unlike our present methods; whipping and other brutalities came in later and had a long lease of life. It is painful to note, however, that graft was perfectly understood and scientifically carried out at the expense of patients and their charitable friends.

Many figures famous in English history come and go in the pages of this interesting volume, some as patients, others as physicians, governors, employees, and visitors. Apart from many of the kings and queens of England, we meet incidentally with Chaucer, Burton, of the *Anatomy of Melancholy*, Alleyne the actor, Anne Boleyn, John Bunyan, Edmund Burke, Daniel Defoe, Lady E. Douglas, Sir W. Dugdale, Simon FitzMary the founder, as well as Thomas Guy founder of Guy's Hospital, Hogarth the artist, Charles and Mary Lamb, Nat Lee, the Duke of Marlborough, Sir Thomas More, Samuel Pepys, Dean Swift, Horace Walpole, John Wesley, Cardinal Wolsey, and many others of almost equal fame, beside physicians, famous not only as alienists, but as ophthalmologists and specialists in other branches of medicine.

The author laments the gaps in his story, due to the loss of important documents, although he expresses the hope that more may be found. The book is filled with entertaining stories about patients and visitors, about curious gifts to the asylum, about old fashioned methods of treatment, those of John of Gaddesden, physician to Edward II, being characteristic of the time and including the heads of fat bats for disorders of the spleen, beetles for stone, and wrapping in red flannel to prevent pitting in smallpox. The illustrations are notable and few of them have appeared elsewhere. They comprise pictures of the many new buildings as they arose, portraits of distinguished personages, facsimiles of documents, views of nearby London, title pages of old books, caricatures, photographs of statues, and the like, and many of them are of fascinating interest. We commend the book highly to the medical historian and to the general medical reader. There are one or two minor slips unavoidable in a first edition.

The author states that the proportion of recoveries at Bethlehem is about thirty-three per cent., but of these about one third relapse; despite modern methods of treatment this is not an improvement over the old days. Probably many cases are self limited. A complete list of the medical officers is given from the year 1619 to the present time.

A Manual of Practical Hygiene for Students, Physicians, and Health Officers. By CHARLES HARRINGTON, M.D., Late Professor of Hygiene in the Medical School of Harvard University. Fifth Edition, Revised and Enlarged. By MARK WYMAN RICHARDSON, M.D., Secretary to the State Board of Health of Massachusetts. In collaboration with the following officials connected with the Massachusetts State Board of Health: H. W. CLARK, Chief Chemist; X. H. GOODBOUGH, Chief Engineer; WILLIAM C. HANSON, M.D., Assistant to the Secretary; HERMANN C. LYTGOE, Chief Analyst of Food and Drug Department; and GEORGE H. MARTIN, formerly Secretary to the Massachusetts State Board of Education. Illustrated with 24 Plates in Colors and Monochrome, and 125 Engravings. Philadelphia and New York: Lea & Febiger, 1914. Pp. 933.

The advances made in this branch of medical science during recent years are fittingly reviewed in this new edition of Harrington's *Hygiene*, by Doctor Richardson and his collaborators of the Massachusetts State Board of Health. The latter is "the first such board to be established in America, and one noted for the high character of its laboratory investigations and its public health administration," the editor informs us. These experts have admirably covered the vast field entrusted to them, the general divisions of which are: Animal foods; milk and milk products; vegetable foods; beverages; food preservation; air; soil; water; disposal of sewage; disposal of garbage; habitations—heating, lighting, ventilation—disinfectants and disinfection; personal hygiene; the hygiene of occupations; medical inspection of schools; tropical hygiene; infection, susceptibility, immunity; the relation of insects to human diseases; quarantine; the administrative control of communicable diseases and disposal of the dead. It is difficult, however, to grant special competence to board of health experts when they treat also military and naval hygiene, the latter of which is dispatched in ten rather commonplace pages, although the former subject is granted an excellent résumé of fifty-two pages. In general, this new edition merits commendation for the ample evidence of faithful work devoted to it, and the practical nature of its copiously illustrated text.

Interclinical Notes.

A severe indictment of the treatment of the insane in Pennsylvania, by Florence L. Sanville, is a feature of the *Survey* for April 3, 1915. The account of the Keystone almshouses makes shocking reading; it is based largely on the report of Dr. C. Floyd Haviland of the Kings Park institution. There is also an account in this issue of the *Survey*, of the care of the insane in South Carolina, where no advance, save quite recently, has been made in the methods for over forty years. A little scientific social legislation is needed in many of our States.

* * *

Mothers' pensions form the subject of editorial comment in the *Outlook* for April 7th. "Governmental aid!" exclaims the writer; "why not? We talk about the conservation of natural resources. What is a greater natural resource than the child—the coming generation? Is it not worth while for the city, for the State, to make it possible to have the child cared for in the most natural and efficacious manner?"

* * *

In the *Outlook* for April 7th are the curious stories of three residents of the United States, two of them not very creditable products of our civilization, one a problem for science's best efforts. The three are Canada Blackie, Nathan Cohen, the man without a country, and Typhoid Mary, who held the secret of the outbreak of typhoid fever at the Sloane Hospital which was the subject of a recent communication to the *JOURNAL*.

* * *

Dr. Thomas J. Mays, Dr. C. H. Hughes, Dr. Thomas Grant Allen, and Dr. Jay W. Seaver are four contributors to the April *Nurse*. Trained nurses and student nurses also furnish entertaining and useful matter. The illustrations continue to be original and, we may say, illustrative. Great ingenuity is displayed in the department devoted to children, particularly in the article on the service of food to sick youngsters.

* * *

The late Professor Lounsbury, of Yale University, deserves to be remembered for his common sense views on the use of English. He destroyed the superstition beloved of small teacher minds, concerning the split infinitive, a construction which he proved by a wealth of quotation, to have been used by the best among the classical writers.

* * *

In *The Coughing Horror*, by Sax Rohmer, in *Collier's* for April 3d occurs this passage: "Every physician is aware that there is a greater likelihood of a patient's passing away between midnight and four a. m. than at any other period during the cycle of the hours." Every physician is aware, on the contrary, that this is the purest superstition, as has been proved by careful study in hospitals.

* * *

In *Collier's* for April 3d, Richard Washburn Child, in a tale of the European war, speaks of the "aseptic" odor of a field hospital. Well, we have known even physicians to misuse this word for "antiseptic," which is what Mr. Child meant to say. An aseptic odor is an admirable phrase to convey the idea of nothing. On second thoughts, and bearing in mind what we hear of gangrene in the field hospitals, did Mr. Child mean to write "septic?"

* * *

The war pictures in *Leslie's* for April 8th are more than usually interesting to the doctor, on account of the large number given up to scenes in the field hospitals, particularly at Neuilly. There are portraits of doctors and nurses, and pictures of the wounded of all kinds, of the wards, many of which are named after American cities, of a concert for the benefit of the patients, and of a fine English setter which saved its master by calling the stretcher men to his aid as he lay neglected in the mud, and has been privileged since to have its meals in the hospital kitchen.

* * *

Dr. F. A. Long communicates to the *Western Medical Review* for April the following delightful list of causes of death which he has noticed in the report of a "great beneficiary order in Nebraska": Stomach trouble, chronic intestinal nephritis, kidney and heart trouble, intestinal nephritis, septicaemia, leukemia, accidental broken neck, meningitis, arteriosclerosis. "Members of a supposedly learned profession," solemnly asks Doctor Long, "does not this humble our pride?"

Meetings of Local Medical Societies.

MONDAY, April 19th.—New York Academy of Medicine (Section in Ophthalmology); Yorkville Medical Society; Medical Association of the Greater City of New York; Medical Society of the County of Erie; Elmira Clinical Society.

TUESDAY, April 20th.—Tompkins County Medical Society; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburgh Medical Association; Oswego Academy of Medicine.

WEDNESDAY, April 21st.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital, New York; Schenectady Academy of Medicine; Women's Medical Association of New York City (New York Academy of Medicine); Medico-Legal Society, New York; Northwestern Medical and Surgical Society of New York.

THURSDAY, April 22d.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Ex-Intern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo; Hospital Graduates' Club, New York; New York Physicians' Association.

FRIDAY, April 23d.—Society of New York German Physicians; New York Clinical Society; Manhattan Medical Society; Society of Alumni of Sloane Hospital for Women; Brooklyn Society of Internal Medicine; Italian Medical Society of New York.

SATURDAY, April 24th.—New York Medical and Surgical Society; West End Medical Society; Harvard Medical Society; Lenox Medical and Surgical Society.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending April 7, 1915:

Bryan,—William M., Passed Assistant Surgeon. Directed to proceed to Mobile, Ala., for the purpose of obtaining proposals for the repair of the station launch, also to rent a launch while repairs are being made. **Carrington**, P. M., Surgeon. Granted ten days' leave of absence, on account of sickness, from April 5, 1915. **Cofer**, L. E., Assistant Surgeon General. Directed to proceed to Providence, R. I., for the purpose of inspecting the quarantine plant recently installed at that station. **Corput**, G. M., Surgeon. Directed to proceed to New Orleans, La., as occasion may demand, for the purpose of attending to necessary station business. **Grimm**, R. M., Passed Assistant Surgeon. Granted seven days' leave of absence, from April 2, 1915. **Light**, S. D. W., Acting Assistant Surgeon. Granted three days' leave of absence, from April 3, 1915. **Perry**, J. C., Senior Surgeon. Directed to report to the bureau, Washington, D. C., for temporary duty. **Rucker**, W. C., Assistant Surgeon General. Directed to visit Richmond, Va., and Baltimore, Md., when necessary, for conference with State health authorities relative to interstate quarantine regulations. **Smith**, Howard F., Assistant Surgeon. Relieved from duty at the Immigration Station, Ellis Island, N. Y., and directed to proceed to Cincinnati, Ohio, for duty in connection with investigations of the pollution of navigable waters. **Townsend**, J. G., Assistant Surgeon. Relieved from duty at the Marine Hospital, Louisville, Ky., and directed to proceed to San Francisco, Cal., and report to the commanding officer of the United States Coast Guard Cutter *Bear* by April 15, 1915, for the summer cruise in Alaskan waters. **Wynne**, R. E., Assistant Surgeon. Relieved from duty at the Marine Hospital, Chicago, Ill., and directed to proceed to the Hygienic Laboratory, Washington, D. C., for temporary duty.

Board Convened.

Board of medical officers convened at Cleveland, Ohio, for the reexamination of an alien. Detail for the board:

Surgeon C. W. Wille, chairman; Acting Assistant Surgeon C. R. Newton, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending April 10, 1915:

Ashford, Bailey K., Major, Medical Corps. Granted one month's leave of absence effective about April 26, 1915. **Austin**, Thomas C., Captain, Medical Corps. Upon the expiration of present leave of absence ordered to proceed to Fort Jay, New York, and report in person to the commanding officer of that post for duty. **Davis**, A. O., Captain, Medical Corps. Reports on three months' leave of absence from Presidio of San Francisco, Cal., with address at South Bridgton, Maine. **Hall**, William E., First Lieutenant, Medical Corps. Ordered to proceed to Texas City, Texas, and report for duty with the Second Division. **Haverkamp**, C. W., Captain, Medical Corps. Reports arrival at West Point, N. Y., for temporary duty from Fort Jay, New York. **Keene**, Thomas B. V., First Lieutenant, Medical Reserve Corps. Upon arrival at Fort Benjamin Harrison, Indiana, ordered to proceed home, and upon arrival there to report by telegraph to the adjutant general of the army; granted two months' leave of absence. **Morse**, Arthur W., Major, Medical Corps. Reports return on April 3, 1915, to Fort Barrancas, Florida, from fifteen days' leave of absence. **Newton**, Ralph W., First Lieutenant, Medical Reserve Corps. Ordered to accompany troops to be sent from Fort Missoula, Montana, to Fort George Wright, Washington, and upon arrival at that post to report to the commanding officer for duty. **Norman**, Seaton, First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an existing emergency and will proceed to Fort Slocum, New York, and report in person to the commanding officer of that post for duty. **Sale**, Charles W., First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Columbus Barracks, Ohio, for duty. **Sappington**, Clifford T., First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an existing emergency, and will proceed to Fort Slocum, New York, and report in person to the commanding officer of that post for duty. **Waring**, John B. H., Captain, Medical Corps. Ordered to proceed to Texas City, Texas, and report for temporary duty with the Second Division. **Warren**, Stanley S., First Lieutenant, Medical Reserve Corps. Ordered to active duty and will proceed to Texas City, Texas, and report for duty.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the four weeks ending April 10, 1915:

Brooks, Overton, Assistant Surgeon. Commissioned an assistant surgeon from March 10, 1915. **Brown**, H. L., Passed Assistant Surgeon. Detached from the *Ohio* and ordered to the *Alabama*. **Dorsey**, B. H., Passed Assistant Surgeon. Detached from the Atlantic Reserve Fleet and ordered to the Bureau of Medicine and Surgery, Washington, D. C. **Dykes**, J. R., Surgeon. Detached from the Naval Recruiting Station, Atlanta, Ga., to wait orders. **Fauntleroy**, A. M., Surgeon. Detached from the Naval Hospital, Washington, D. C., and will act as assistant to the Naval Attache, Paris, France. **French**, G. R. W., Passed Assistant Surgeon. Detached from the Naval Hospital, New York, and ordered to the *Maryland*. **Halsey**, W. H., Passed Assistant Surgeon. Ordered to the Naval Training Station, San Francisco, Cal. **Murphy**, J. F., Surgeon. Ordered to the Naval Recruiting Station, Atlanta, Ga. **Rennie**, W. H., Surgeon. Detached from the Naval Hospital, Boston, Mass., and ordered to the Naval Hospital, New York. **Rose**, M. E., Acting Assistant Surgeon. Detached from Navy Yard, Charleston, S. C., and ordered to the Naval Hospital, Washington, D. C., for treatment. **Simpson**, C. A., Assistant Surgeon. Resignation accepted to take effect March 18, 1915. **Turner**, H. W. B., Passed Assistant Surgeon. Detached from the *Albany* and ordered to the Asiatic Station.

Births, Marriages, and Deaths.

Married.

Barnard—Stone.—In San Francisco, Cal., on Wednesday, March 24th, Dr. Harold Dewey Barnard, of Sacramento, and Miss Harriet Stone. **Gallagher—Franey**.—In Shenandoah, Pa., on Monday, April 5th, Dr. John C. Gallagher and Miss Ella Marie Franey. **Leidy—Relinger**.—In Boyertown, Pa., on Saturday, April 3d, Dr. Ralph E. Leidy and Miss Albertina Relinger. **Lorton—Oughton**.—In Hillsboro, Mo., on Tuesday, January 12th, Dr. Thomas S. Lorton, of Pana, Ill., and Miss Mary Oughton. **Low—Fariello**.—In Pueblo, Col., on Wednesday, March 31st, Dr. Harold T. Low and Miss Estella Josephine Fariello. **Seipel—Kaehny**.—In Valparaiso, Ill., on Tuesday, March 23d, Dr. Herman O. Seipel, of Frankfort, Ill., and Miss Charlotte Kaehny. **White—Fellows**.—In Springfield, Mass., on Saturday, April 3d, Dr. Everett White, of Lynn, Mass., and Miss Susie A. Fellows.

Died.

Barnett.—In Peoria, Ill., on Monday, March 29th, Dr. J. R. Barnett. **Beals**.—In Mattoon, Ill., on Wednesday, March 31st, Dr. Francis M. Beals, aged sixty-two years. **Bigler**.—In Dallastown, Pa., on Thursday, April 1st, Dr. William Brooks Bigler, aged eighty-two years. **Brown**.—In Cincinnati, Ohio, on Friday, April 2d, Dr. Hattie C. Brown, aged fifty-three years. **Burton**.—In Martinez, Cal., on Monday, March 29th, Dr. Benjamin T. Burton, aged sixty years. **Clark**.—In West New Brighton, N. Y., on Friday, April 9th, Dr. James G. Clark, aged ninety years. **Claypool**.—In Berkeley, Cal., on Saturday, March 27th, Dr. Edith J. Claypool, aged forty-five years. **Dougherty**.—In Beverly, Mass., on Tuesday, April 6th, Dr. William J. Dougherty, aged thirty-three years. **Duncan**.—In Harrison, Ohio, on Sunday, April 4th, Dr. John H. Duncan, aged seventy-one years. **Gaines**.—In Hagerstown, Md., on Saturday, March 27th, Dr. John M. Gaines, aged seventy-one years. **Holly**.—In Greenwich, Conn., on Wednesday, April 7th, Dr. Francis Manton Holly, aged eighty-three years. **Johnson**.—In Mansfield Depot, Conn., on Sunday, March 28th, Dr. Frederick Eugene Johnson, aged sixty-eight years. **Kelly**.—In Archibald, Pa., on Saturday, April 3d, Dr. John J. Kelly, aged fifty-six years. **Kneass**.—In Baltimore, Md., on Saturday, April 3d, Dr. Robert K. Kneass. **Kolb**.—In New York, on Tuesday, April 6th, Dr. Henry Kolb, aged fifty-four years. **Lubbinga**.—In Chicago, Ill., on Monday, April 5th, Dr. Henry E. Lubbinga. **McLaren**.—In Rainier, Ore., on Monday, March 29th, Dr. Alexander P. McLaren, aged forty-six years. **Magruder**.—In Belgrade, Servia, on Thursday, April 8th, Dr. Ernest Pendleton Magruder, of Washington, D. C., aged forty years. **Minish**.—In Gratz, Ky., on Wednesday, March 31st, Dr. John A. Minish, aged thirty-eight years. **Nichols**.—In Boston, Mass., on Monday, April 5th, Dr. Charles Fessenden Nichols, aged sixty-nine years. **O'Donnell**.—In Northampton, Mass., on Tuesday, March 30th, Dr. James C. O'Donnell, aged forty-five years. **Osthues**.—In Brooklyn, N. Y., on Sunday, April 4th, Dr. Henry Osthues, aged forty-six years. **Pilsbury**.—In Chicago, Ill., on Tuesday, March 30th, Dr. John M. Pilsbury, aged seventy-eight years. **Rivers**.—In Hopkinsville, Ky., on Monday, March 29th, Dr. Robert J. Rivers, aged thirty-four years. **Safley**.—In Livingston, Mont., on Saturday, March 27th, Dr. Lewis E. Safley, aged fifty-eight years. **Sheffield**.—In Cedar Springs, Ga., on Monday, March 29th, Dr. Thomas E. Sheffield, aged thirty-five years. **Smith**.—In Hartford, Conn., on Saturday, March 27th, Dr. Oliver C. Smith, aged fifty-six years. **Speakman**.—In Brookline, Mass., on Tuesday, March 30th, Dr. Rachel T. Speakman, aged eighty-eight years. **Stavelly**.—In Lahaska, Pa., on Monday, March 29th, Dr. William R. Stavelly, aged eighty-four years. **Sturgis**.—In Auburn, Me., on Wednesday, March 31st, Dr. Benjamin F. Sturgis, aged seventy-seven years. **Thompson**.—In Philadelphia, on Wednesday, March 31st, Dr. Landreth W. Thompson, aged fifty-two years.

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THE CONTRAST BETWEEN THE SURGERY OF THE CIVIL WAR AND THAT OF THE PRESENT WAR.*

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The first notable difference between the surgery of the Civil War and that of the war of 1914-15 is in the weapons of warfare.

The changes in the rifle bullets since the Civil War have been very great. The Minié ball (Fig. 1, named after a French officer who devised it in the middle of the nineteenth century), consisted wholly of lead. It measured, say, an inch in length and its base was a half inch across. It weighed from 700 to 840 grains ($1\frac{1}{2}$ to $1\frac{3}{4}$ ounce—an ounce is 480 grains). The rifling, or groove inside the gun barrel, made about one complete turn in the length of the barrel, thus causing the bullet to revolve on its long axis at the rate of 800 times a second as it left the muzzle. Its muzzle velocity was 963 feet in a second and its effective range was about 3,000 feet. Minié balls often lodged in bone or even among the muscles. They were easily deformed. Fig. 2 shows several such balls which I removed from soldiers in 1862 and 1863.

The modern missile is far smaller and lighter, hence the soldier can carry nearly twice as much ammunition in his cartridge belt as during the Civil War. The missile consists of a leaden core encased in a cupro-nickel-steel or other metal "jacket." In shape it is a cylinder terminating in a pointed forward end (Fig. 3). Its weight varies for the different armies from, say, 139 grains (Spanish) to 174 grains (British). It measures an inch to an inch and a quarter in length and a quarter of an inch in diameter at the base. Instead of the old black powder, which produced much smoke, it is driven by smokeless powder and so the gun is not quickly fouled by the unconsumed carbon (smoke). Much greater velocity both of rotation and of translation is thus attained. The rifling makes nearly two and a half complete turns in the gun barrel. The missile therefore leaves the muzzle making 2,500 revolutions on its long axis and with a velocity of over 8,000 feet in a second. Its effective range is nearly three miles. When it strikes,

its hard metal jacket as a rule prevents any great deformity, but if it strikes a very hard bone, as in the middle of the thigh—or arm—head on, as Dr. William S. Wadsworth (*International Clinics*, iv, 20th series, 1910) has shown, the lead at the base is propelled or crowded forward and may burst open the jacket. The lead then may mushroom and so give rise to the suspicion that it is a dum-dum bullet. Fig. 4, kindly furnished me by Dr. W. S. Wadsworth, of Philadelphia, shows several such bullets from his collection. Its velocity is so great that at close range the bone may be almost pulverized instead of only being broken into large and small fragments, as was done by the Minié ball. The shorter the range, the greater this explosive effect, even in soft muscles. At long range it may simply perforate a bone, especially near joints where the bone is spongy in texture. The trenches in Belgium and France are generally separated by a short or sometimes a very short distance.

This violent explosive effect at short range has given rise to the charge by both sides in the present war that dum-dum¹ bullets were being used. I think that the most competent testimony is that the charge on both sides is incorrect, the explosive effect of the swiftly moving and swiftly revolving modern missile and the possible rupture of the jacket causing the error.

In previous wars about ninety per cent. of the wounds were from rifle bullets. In the Russo-Japanese war and especially in the present war artillery has been used as never before and a far greater number of wounds are from shrapnel and fragments of shell. Shrapnel² consists of a hollow metal shell filled with round leaden balls about half an inch in diameter, weighing from 160 to 170 grains each (Fig. 5). According to the size of the shell, it will contain from 250 to 1,100 of these balls. This last number is contained in a shell six inches in diameter. When the shell bursts it scatters these balls in a shower and over a very wide area. Barling (*British Medical Journal*, January 30, 1915, p. 191) records one case in which seventeen of these balls from one shell were lodged in various parts of the body of one Belgian soldier. Fortunately he recovered. Fig. 6 shows five of these seventeen balls. Not only do the balls produce severe wounds, but the larger and smaller ragged fragments of the

*Address delivered before the Philadelphia County Medical Society, March 24, 1915. As the general public were invited, the style and the illustrations selected were such as would be suitable to a mixed audience.

¹These are named from a factory near Calcutta where "cartridges were manufactured, designed for use against savage tribes, provided with a bullet which when striking the human body at a high velocity would expand more or less and appreciably increase the shock and the severity of the wound."

²So named from a British general who devised them during the Peninsular War. See *JOURNAL*, November 28, 1914, editorial article, p. 1080.

shell itself produce the most ghastly and extensive wounds. Hand grenades and hand thrown bombs have been employed to some extent in the present war, but so far as I have seen not so generally or effectively as in the Russo-Japanese War. Their fragments produce very ragged and severe wounds.

Modern surgery was founded in the middle of the sixteenth century by that fine old Huguenot, Ambroise Paré, who might well boast that he was surgeon to five kings of France. On account of his great services to the army as a surgeon, his life was saved by Charles IX during the massacre of St. Bartholomew. When describing his cases he constantly used the pious and truthful formula, "I dressed him and God cured him."

Up to his time, to counteract the poison which was believed to be caused by gunshot, for gunpowder and cannon were comparatively new weapons, such wounds were treated by pouring in boiling oil and hot pitch. Bleeding after amputation was staunched by the application of the red hot iron. One day when the hot oil and pitch gave out, Paré was compelled to use simple ointment and dexterous bandaging. He spent that night in misery lest the patients should incur direful dangers. To his surprise and gratification the result was far better than the old treatment, and thereafter he banished the former means of torture. In 1552, he discarded the hot iron and tied the bloodvessels to stop the bleeding. Had there been any antivivisection societies in his day, they would doubtless have accused him of human vivisection, for this was indeed a bold experiment. Had he, or some later surgeon *not* tried this experiment on man or on animals, we should be still using the cruel cautery. From the cruel time of Paré to that of the Civil War there was a gradual but steady improvement, but not till anesthetics slew the demon of pain was the surgeon aught but a minister of horrible suffering. Our dressings in the sixties consisted of simple ointments, often only cold unboiled water, followed later by constant poulticing to initiate and promote the abundant flow of pus. Little did we dream that our patients recovered as a result of a kind *vis medicatrix naturæ*, and, as we now know, in spite of our encouragement of infection. The healing power of good old Mother Nature is often almost past belief.

We had plenty of ether and chloroform during those four dreadful years. The former had been first publicly used in 1846 and the latter in 1847. But the Mutiny in India, in 1857, was in strange contrast to our happy experience. That occurred ten and eleven years after the discovery of anesthetics, yet in the army of the East India Company and during the dreadful siege of Delhi, Lord Roberts states that "anesthetics were unknown."³

The hypodermic syringe was not in wide general use even toward the close of the war. It reached its present perfection only in 1865. We had the ordinary and dangerous probe (Fig. 7a). This may be described as a slender flexible silver finger to detect the course and, if possible, the presence of a bullet, but in our ignorance of bacteriology, not being sterilized, it was also a means of carrying infection deep into the wound. In 1862, Nélaton of

Paris invented his celebrated probe for use in Garibaldi's case (Fig. 7b). This was a rather stout but flexible wire tipped with a bulb of *unglazed* porcelain and therefore *rough*. When the probe met with any hard body, such as a bone or a lead bullet (the only kind of bullet then used), by rotating the probe, if the hard body were of lead, the rough porcelain would show a dark spot of lead, but if of bone no such spot would be produced. By this means, after other surgeons had failed, it was ascertained that the ball was still in Garibaldi's foot and prevented the wound from healing. The ball was then removed by an Italian surgeon, the distinguished patient was cured, and fame and fortune came to Nélaton.

We used only the ordinary marine or toilet sponges. After an operation they were washed in ordinary water to cleanse them of blood and pus, and were used in subsequent operations. In our ignorance of bacteriology we did not know that they harbored multitudes of germs which infected every wound in which they were used. If one fell on the floor it was squeezed two or three times in ordinary water and used at once!

Apart from knives, saws, forceps, and needles, the foregoing list practically completes our means and methods of surgical diagnosis and treatment in the sixties.

What now has been added to our armamentarium?

1. The thermometer. During, and for some years after the Civil War we felt the patient's arm or neck by our own hand and decided whether there was fever or not. How inaccurate this was is self evident. In 1868, Wunderlich published his book on the thermometer⁴ and then only did we begin to use this as an instrument of precision. The early thermometers were the ordinary long ones. The first short "clinical thermometer," such as we now always use, that I ever saw was brought to me from London, in 1876, by Weir Mitchell. It has had a charmed life, for it has never yet been broken.

2. Clumsy hands and fingers were our only means of separating the edges of a wound to examine its depths and were greatly in the way of the operator. Now we have retractors of various kinds, which enable us to see and avoid or treat deep bloodvessels, nerves, and other important structures. (Fig. 8.)

3. Among the greatest improvements in arresting hemorrhage are our hemostatic forceps. In the Civil War each artery had to be caught and held up by a tenaculum or hook (Fig. 7c) and tied with silk (undisinfected of course), one end being cut short; the other left long. Meantime other arteries were spouting blood until caught and tied one by one. In an amputation of a muscular thigh, twenty or thirty of these silk ligatures might be required. Those on the two or three larger arteries were knotted to identify them. After three or four days we pulled on each of the unknotted ones to see if they had rotted loose. After a week or ten days we pulled on the knotted ones. If the blood in an artery had clotted and become adherent to the wall of the artery—thus corking it up—all went well. But often—as practically all wounds were infected—the clot did not become adherent, and when these knotted ligatures

³I have seen some statements that in the present war the supply of anesthetics has given out at times.

⁴Published in English in 1871.

were pulled loose severe hemorrhage occurred and often caused death. I have seen the blood soak through the mattress and make a pool on the floor.

Never shall I forget one night about two weeks after the battle of Gettysburg. I was on duty for twenty-four hours as officer of the day, my duty being especially to attend emergency cases during the



FIG. 1.—A Union and a Confederate Minié ball, pieces of a shell and of a bayonet mounted on a piece of wood from Culp's Hill. All from the Gettysburg Battlefield (Jefferson Medical College Museum).

night. I was called in that one night to *five* such cases of severe "secondary" hemorrhage—so called to distinguish it from the primary hemorrhage occurring at the time of the wound. In all the years since 1876, when I adopted Lister's antiseptic method, *I have not seen five other cases* of secondary hemorrhage.

One of these five cases during that busy night will never be effaced from my memory—a wound just above the inner end of the right collar bone. The bullet had not emerged; its direction was unknown; the hemorrhage was profuse; whether it came from one of the smaller bloodvessels of the neck or from the carotid, the jugular, the subclavian, or even the largest artery in the body except the aorta, was wholly unknown. The man was etherized and I proceeded to search for the wounded vessel. My only light was a square block of wood with five auger holes, holding five candles. It was before even the days of petroleum. As the wound was so near the mouth, of course the light had to be near the ether cone. I have often wondered since that I did not have the sense to use chloroform, which is not inflammable. Suddenly the ether took fire and the etherizer flung away both cone and bottle. Luckily the bottle did not break or we might have had an ugly fire in a hospital of 3,000 beds, constructed wholly of wood. After a large loss of blood and many futile attempts, I finally secured the artery. I am glad to add that the patient recovered.

We now use the hemostatic forceps (Fig. 9). These have a ratchet on one handle and a catch on the other. We quickly seize and clamp one artery after another, leaving each forceps hanging. When all the arteries are thus clamped, we tie them at our leisure. The amount of blood lost, therefore, is far less.

4. But the chief reason for the almost total disappearance of secondary hemorrhage and the many other dangerous complications of wounds is that

now, as a result of Lister's researches, we have adopted antiseptic methods. Now we tie the arteries with *disinfected* catgut or silk, cut both ends short, close the wound entirely, and never hear of the ligatures again. They are finally absorbed.

5. The x rays were not discovered by Röntgen until 1895. By means of these we have banished Nélaton's and other probes, for we can *see* bones, bullets, and other foreign bodies, accurately locate them, and remove them if necessary. A bullet which has not passed clear through, does all the harm it can in its transit in the body, and when it has come to rest, unless it is in such proximity to vital organs as to threaten immediate further harm, should be let alone as a rule, for some days at least; then, if just under or very near the skin, it may be removed. If at a greater depth, the surgeon's good judgment must be used to determine whether an operation or the bullet is the more dangerous.

6. Instead of marine sponges we use sterilized gauze and discard it when it has been infected by pus or even by touching any object that has not been disinfected.

7. Our hands being very difficult to disinfect, we use thin rubber gloves disinfected by boiling.

8. The Red Cross; 9, the trained nurse; 10, the motor ambulance, have all been introduced since the Civil War and have rendered inestimable service.

In the *Journal A. M. A.* for February 13, 1915, pp. 602 and 603, are described (a) a motor operating theatre large enough for two operating tables, surgeons, assistants, and appliances, and (b) a motor bacteriological laboratory with all needed facilities for immediate bacteriological diagnosis. (c) I have also seen a description of an x ray automobile and (d) of a complete motor steam laundry to wash 10,000 pieces a day. All these should be of great use in the field.

11. But the greatest boon has been the discovery that inflammation, suppuration (the formation of matter or pus) abscesses, erysipelas, blood poisoning (sepsis), tetanus (lockjaw), gas gangrene, and many other surgical and medical disorders and diseases are caused by germs or bacteria. From the last the name bacteriology was applied about 1884



FIG. 2.—Deformed Minié balls, removed from wounded soldiers by the author in 1862 and 1863. (Courtesy of General W. C. Gorgas, surgeon general United States army.)

to the science treating of all kinds of germs. From the general term sepsis (that is infection) is derived antiseptic or anything which will *prevent* infection. If this is prevented then no pus forms, no infection by any germ occurs, none of the disorders above named follow, and the wound heals in a few days. The antiseptic method was ushered in by Lister's first paper in 1867, but was not generally accepted until about 1879.

What we did in the pre-Listerian days seems now almost incredible. Any well informed layman may

well shudder at it. Nothing was disinfected in the days of the Civil War, for we knew nothing about infection and what caused it. Practically all the various germs have been discovered since 1881, when the commonest germs which produce inflammation and pus were first identified.

Before an operation nothing was rendered sterile by antiseptics, or by heat (boiling, baking). I have seen more than once, my old teacher, Professor S. D. Gross, give a last fine touch to his knife on his boot—even on the sole—and then at once use it from the first cut to the last. When threading a needle, all of us pointed our silk by wetting it with germ laden saliva and rolling it between germ laden fingers. Some of the demonstrators of anatomy in the dissecting room actually also assisted at opera-

2,800 cases of blood poisoning (pyemia) during the Civil War, only seventy-one ended favorably; less than eleven in every hundred cases of lockjaw got well, the mortality from trephining was sixty-one per cent. Of hospital gangrene I have never seen a case since the Civil War. Erysipelas and lockjaw, save in neglected cases, have almost disappeared in civil practice (Fig. 10). But one peculiarity of the present war is the frequency of lockjaw and especially of gas gangrene. Of this I shall say a word later on.

Fifty years ago, amputations in different regions of the body were fatal in from twenty-eight to over eighty-three per cent.; averaging for the four major amputations (arm, forearm, thigh, leg) about forty per cent. In civil practice at present the percentage

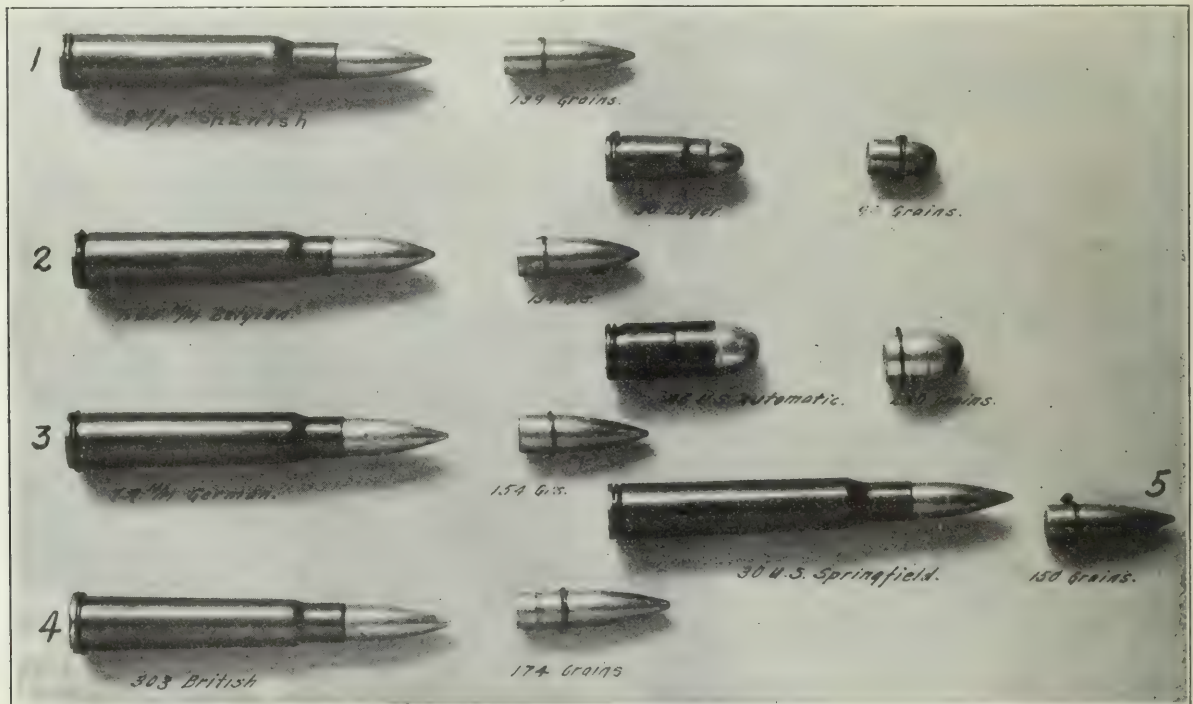


FIG. 3.—Modern rifle bullets. 1, Spanish (139 grains). 2, Belgian (154 grains). 3, German (154 grains). 4, British (174 grains). 5, American (150 grains). The long cartridges include the powder and the bullet. The detached bullets are placed to the right of the cartridges.

tions in the surgical clinic. In a medical school the professor of anatomy himself might be also professor of surgery or at least hold a surgical clinic. Naturally every wound suppurated so that in the little hospital of only eight or ten beds then attached to the Jefferson Medical College, as everywhere else in those days, pus was always on tap. "Tomorrow, Hugh," I have often heard Professor Gross say to the orderly, "I shall lecture on suppuration. Get me half a tumbler of pus from the hospital!" And Hugh was always successful!

The results of infection were that practically every serious wound was bathed in pus, many times abscesses followed, or erysipelas, or blood poisoning, or hospital gangrene, or lockjaw.⁵ Of over

for these amputations does not exceed five or six per cent.⁶

12. One of the greatest benefits to the modern soldier is the first aid packet (Fig. 11), now carried by every soldier. This consists of dressing, bandages, and safety pin, all carefully sterilized and protected from infection by rubber cloth or now more commonly by a metal case. By pulling on the ring, the case is easily opened. At present some tincture of iodine and a small swab for its application have been added. The soldier himself or a comrade, or better still the regimental surgeon, if possible, at once disinfects the wound by swabbing it with the iodine, applies the dressing and bandages, and thus prevents infection in a large number of cases. These cases, even serious ones, usually terminate in recovery very quickly. If, however, the wound is from a fragment of a shell, which makes a fright-

⁵Those who wish to learn the horrible conditions in hospitals fifty years ago can consult Lister's own vivid description of the Royal Infirmary, Glasgow, quoted on pp. 216-18 in my book, *Animal Experimentation, etc.*, or the even more vivid passages from John Bell's *Surgery*, published one hundred years ago and quoted by Wrench in his *Life of Lord Lister*, pp. 68-79, and Sir James Y. Simpson's *Works*, ii, pp. 280-405.

⁶In 469 cases of these four standard amputations, Estes has reported only twenty-five deaths, a mortality of 5.3 per cent.

fully large wound, and especially if a bit of the clothing or other foreign body is carried into the wound, infection is almost certain.

One curious case is related of a British officer who, when shot, had some English gold in his belt and a diary in his pocket. Part of the diary was driven into his thigh and for some days he shed leaf after leaf. Two of the coins were found lodged next his spine. Even the most loyal Britisher might rightly complain of such a superfluity of "sovereigns."

In the present war, at least in Belgium and France, in a country cultivated and roamed over by horses, cattle, and other animals for centuries, the soil has become so thoroughly inoculated with the germs of suppuration, tetanus, gas gangrene, etc., that infection occurs in a large proportion of the wounds. To show how deadly infective this soil is, an experiment by Dr. Sidney Rowland, an English bacteriologist, is worth recording. He shook up some of the earth from the trenches with water and inoculated a guineapig with a few drops of the water. In *eighteen hours* the animal was dead and its tissues were filled with gas from the gas-producing bacteria which cause this form of gangrene! Death from gas gangrene may follow in a soldier in as short a time as thirty-six hours after he has been wounded, and upon pressure the tissues may crackle from the gas under the skin and elsewhere. Over ten different forms of bacteria have been found which cause gas gangrene, and their life history and the best means of combating their quickly fatal results are being studied and sought. In no other war has gas gangrene been so rife, nor lockjaw, the germ of which also lurks in the soil, been so frequent.

The danger of infection is still further accentuated by the fact that the opposing armies do not, as



FIG. 4.—Jacketed bullets fired at the Sea Girt rifle range from United States magazine rifle, model 1895 (Krag). Showing the jacket burst open and the mushrooming of the leaden core, thus resembling dum-dums. (From Dr. W. S. Wadsworth's collection.)

heretofore, fight a battle for a day or two and then move on, but the soldiers fight for days and weeks in deep trenches often filled with mud, water, or snow; hence many amputations from frozen feet. To make matters worse, the same clothing, often covered with mud, has been worn without a bath—especially in cold weather—sometimes for weeks.

If the patient can be treated in a hospital within six hours after being wounded and sometimes even longer, infection as a rule can be prevented. Later the germs will have so multiplied, especially if dirty skin or clothing has been driven into the wound, that prevention is practically impossible. Infection then progresses, and in spite of every effort too often results in death.

How rapidly the bacteria grow is shown by Belfield's estimate that if a single bacterium, of which it takes forty million to make one grain, is given plenty of food and unlimited space to grow, in three days it would form a mass weighing 800 tons! It

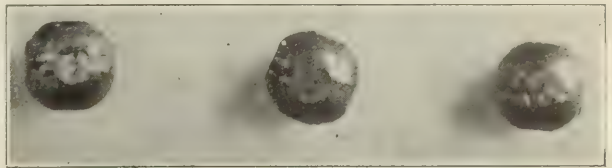


FIG. 5.—Balls from a shrapnel shell.

is the old story of the blacksmith who offered to shoe the knight's horse for one penny for the first nail, two for the second, four for the third, and so on—a bargain which would cost a kingdom.

In spite, therefore, of our scientific achievements in surgery as seen in civil life, military conditions in the present war I fear will neutralize these achievements to a large extent and be followed, it may be, by a mortality nearly if not quite equal to that of the Civil War.

The most transcendent of all problems in surgery for years past and reaching its utmost urgency in the present war, is the discovery of the means by which, in a thoroughly infected wound, without injuring the patient, we can destroy the germs, sterilize the wound, and keep it sterile, and also neutralize the poisonous products of the bacteria diffused all through the body by the blood and the absorbents.

"I spent three months in a large hospital in Lyons," writes my friend, Doctor Carrel, in a letter dated Paris, January 4, 1915. "I realized then that the main cause of death or of amputation was sepsis [infection]. . . . It was hardly possible to utilize my work in vascular surgery [i. e., surgery of the bloodvessels], for that requires the absolute absence of all infection. Therefore I decided to modify the direction of my work and to do what is chiefly needed . . . to find new methods of fighting surgical infections. It would save thousands of men and of limbs."

Can there be anyone so cruel as to put even a straw in the pathway of this distinguished surgeon in seeking these methods? If he is successful, not thousands but hundreds of thousands, in every country under the sun, in civil life as well as in war, would be his debtors, and not only now but for all the centuries to come. The Rockefeller Foundation has generously provided the funds for his researches.

The war of 1914-15 is really a siege of entrenchments to a degree never before seen. The Russo-Japanese war was, I believe, the first in which this radical change in methods of warfare in the field was extensively used. Before Port Arthur there

were thirty miles of trenches. In the present war in the west alone, there must be many hundreds of miles in use by each of the belligerents. Figs. 12 and 13 show the general character and arrangements of the trenches. Life in these on the firing line, especially in winter, is hard and dangerous, but the troops are frequently changed from the front to the second or third line of trenches where comparative rest and some opportunity for bathing, better sleep, and even some recreation may be had. George Kennan (*Outlook*, February 10, 1915) has fully described Japanese trenches with "rooms" of



FIG. 6.—Seventeen shrapnel balls from one shell were imbedded in this patient, who, however, recovered; five of these balls imbedded around one knee are shown. The light space around the ball to the right indicates a small abscess. (Courtesy of the *British Medical Journal* and of Mr. Gilbert Barling, of Birmingham, who had charge of the patient in northern France.)

some size for dining, massing troops for assault, a small field hospital, etc. A recent letter from a former member of the Bryn Mawr faculty picturesquely describes conditions in the French trenches as "a war of rabbits or of moles," but he also says that their food is good and varied, their comfort looked after, and bathing and even amusements are provided, at least in the trenches in the rear of the firing line. The general health of the troops has been

exceptionally good. There seems to have been but little dysentery or pneumonia, which are often close neighbors to typhoid as medical dangers to armies.

Typhoid has been practically abolished in the American army. In 1913 not a single death occurred, even among the troops on the Mexican bor-

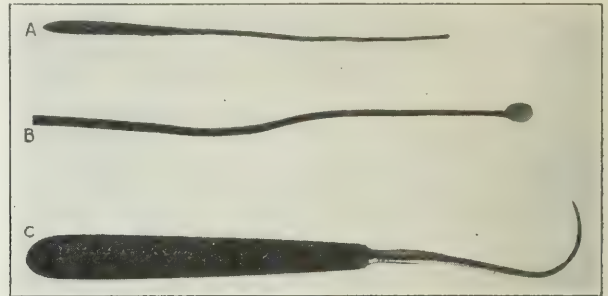


FIG. 7.—a, Ordinary silver probe. b, Nélaton's rough porcelain tipped probe. c, Tenaculum or hook.

der, where except for wounds the conditions were those of war. The sudden disappearance of this, the worst medical foe of the soldier, is chiefly due to the use of the antityphoid vaccination. In the decade ended December 31, 1910, the number of cases of typhoid in the United States army averaged 314 per annum. In the year 1911 there were fifty-seven cases of typhoid fever with eight deaths; in 1912 there were twenty-four cases with four deaths, and in 1913 only four cases and no deaths. The mean strength of the army for these three years, 1911-1913, was 87,299 instead of an average of only 67,725 in the decade 1900-1910, an increase of nearly twenty-five per cent. Immunization against typhoid fever became compulsory June 9, 1911, and it is to this measure that we attribute the marked decrease from an average of 314 cases a

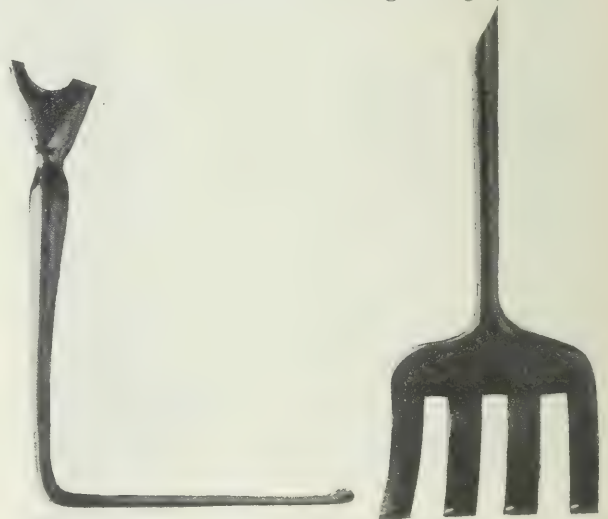


FIG. 8.—Two retractors. The long handles are only partly shown. Many other different sizes and shapes are made.

year for the decade mentioned (1900-1910), to four cases in 1913.

In the British army this vaccination unfortunately is not mandatory, but about eighty-five per cent. of the soldiers voluntarily submit to it. How splendidly these men have been protected is well shown by the following contrast:

¹Reproduced from the *Outlook* for December 2, 1914, by kind permission of the publishers.

During the Boer war with their relatively small army (averaging 208,326), there were 57,684 cases of typhoid with 8,022 deaths and 19,454 were in-

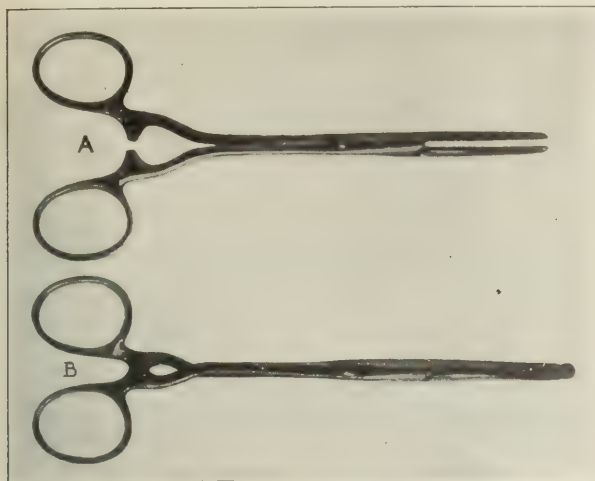


FIG. 9.—Hemostatic forceps. a, Open, showing ratchet and catch. b, Closed, clamping a bit of rubber tubing.

validated. According to an official statement by the British War Office on March 4, 1915,⁸ the following table of cases of typhoid fever and the resulting deaths in the very large British forces in the field was published:

	Cases.	Deaths.
Uninoculated	359	48
Fully inoculated within two years (two doses)	111	1
Partially protected (one dose)	136	1
	247	2

And yet there are some fanatics who are doing all in their power to prevent the British soldiers from taking this simple and effective means of saving their lives!

The difficulty of aiding and especially of removing the wounded in the present war is extremely great in the daytime. So far as I have seen, there has

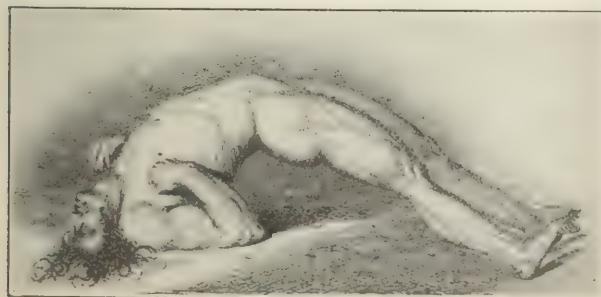


FIG. 10.—Very severe case of tetanus. The spasms begin in the muscle of the jaw (lockjaw); finally, the frightfully painful cramps extended all over the body. Note the cramps even of the toes. Consciousness is unimpaired. I saw at least one case as severe as this and a number of rather less severe cases during the Civil War. (From Sir Charles Bell's *Anatomy of Expression*.)

been no armistice for the burial of the dead or for collecting the wounded. Night affords the principal opportunity for the removal, and even then a light, whether carried in the hand or displayed on a wagon or an automobile, invites the fire of the enemy. Every hour of delay gives time for infection to hasten its deadly work.

⁸British Medical Journal, March 13, 1915, p. 485.

Only when one side or the other has been driven back, can the wounded be entirely and quickly removed. Between the hostile trenches in France and Belgium the wounded may have to lie, not only for hours, but for days. After Waterloo ten days elapsed before all the wounded were cared for. After the battle of Gettysburg all the wounded had been dressed by July 4th, twenty-four hours after the battle ended. On the other hand my personal experience after the second Bull Run shows how, in 1862, even when the armies did move on, the wounded suffered.

Immediately after the battle I was sent to Centreville with 2,500 blankets, 800 suits of underwear, 400 dozen of whiskey, brandy, and other stimulants, 600 cases of canned soups, etc. By the time of my arrival our army had already retreated. I found over one hundred desperately wounded men lying on the floor of the little church and no surgeon to care for them. My duty lay right before me. The only assistants I had were three or four men of the Christian and the sanitary commissions, for all the soldiers, even the wounded who could walk, had left with the army in order to avoid capture. Most of the patients had only a little straw under them and day by day this became less and less, for the soiled straw, after being soaked with pus or with blood from hemorrhages, had to be taken away and I had no one to get any more. Bedsores sometimes as large as a hand caused intolerable pain and many deaths.

The third night after the battle I passed such a night as I have never experienced in my life either before or since. After a wearisome, wearing day I had gone to bed after midnight. A long train of about 100 ambulances arrived about two hours later, taking the wounded from the field of battle back to Washington. There were four surgeons to look after them on the way. Nearly all the poor thirsty fellows were crying for water, many more moaning with pain from a jolting ride of nine miles, part of it over a corduroy road. Most of them had had nothing to eat or drink for one, two, or three days, save what they had obtained from their own haversacks and canteens, or those of poor fellows lying dead beside them. Not one of them had had his wound touched (for it was before the day of the first aid packet) until this ambulance train reached them on the third day. Some had such horrible wounds that they could absolutely go no further and had to be removed on stretchers and taken into the hospital. Several were already dead and their bodies had to be removed. One of us immediately started with a pail of water and a tin dipper to supply the most urgent want. Another, as quickly as we could heat some canned soup, started on a similar errand to supply their hunger, while I took a bottle of morphine and my pocket penknife and did not worry over any superfluous exactitude in doling out the blessed relief of morphine. All of this, mark you, was done in a totally dark night with the aid of two or three dim lanterns, in a drizzling

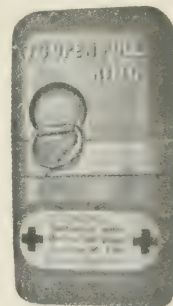


FIG. 11.—First aid packet in metal case.

rain, and in six inches of Virginia mud. Toward morning the train moved on its suffering road to Washington.

The far greater range of the modern missile necessitates the establishment of the field hospitals in the present war at a greater distance from the front and so involves a longer transport of the wounded and a greater delay in their proper care. The hospitals are arranged very much as in our Civil War, but, I judge, more systematically. Then, too, there are many more splendid roads and railroads in France and Belgium than with us fifty years ago or even now. First, there are the field hospitals or dressing stations very near the firing line, or even in the trenches. These are for the arrest of hemorrhage, immediate dressing and early treatment of shock. Next come the clearing hospitals at a much greater distance and usually out of the range of artillery fire. To transport the wounded up to this point, a vast improvement in speed and safety is attained by the employment of motor ambulances, which are legion in number. Finally, the wounded are taken by ambulance trains provided with surgeons and nurses to the base hospitals, often as far away as the large cities, or even to England.

But in spite of every care, what hideous suffering the wounded have to undergo!

It has been a common impression that many needless operations, especially amputations, were done during the Civil War. Undoubtedly this is true to some extent. But I firmly believe that many more lives were lost by *not* performing such operations than by needless operations. After Antietam I sent to the Army Medical Museum in Washington from the hospitals in Frederick, Maryland, alone, the bones

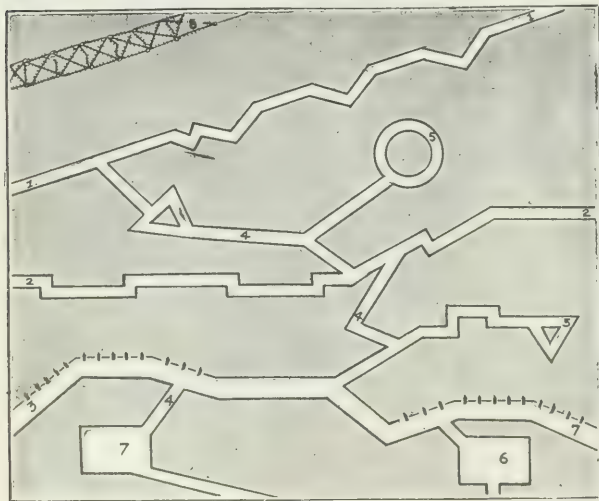


FIG. 12.—A series of trenches. 1, Advance trench. 2, Middle trench. 3, Main line, with machine guns. 4, Connecting trenches. 5, Observation points for noncommissioned officers. 6, Officers' mess room. 7, Advanced hospital. 8, Barbed wire entanglement. Entanglements would also be erected between trenches 1 and 2 and 3.

from over a score of knee joints all removed post mortem, every one of which ought to have been amputated immediately in the then state of our knowledge and practice. Now that antiseptic methods have been introduced, most of these patients, especially if wounded at long range by a modern bullet (not by shell or shrapnel) would recover without amputation.

A comparison between the danger of immediate death in battle or later from wounds in the Battle of Gettysburg, and of the danger of death from the surgery of Civil Life in the '60's, shows that it was seven times safer to fight all through the three days of Gettysburg than to have an arm or a leg cut off

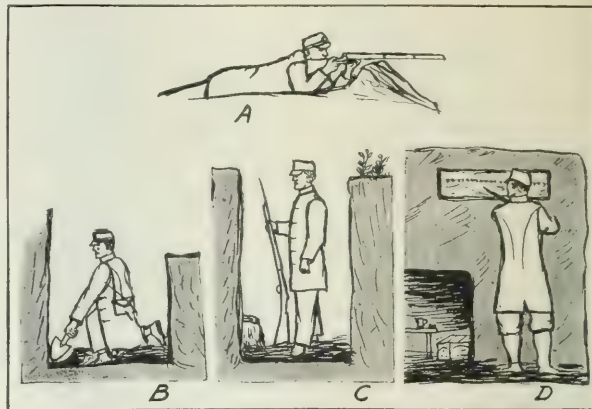


FIG. 13.—Progressive digging of the trenches. These sketches indicate the speed with which trenches grow. a, Represents less than half an hour's work. b, An hour. c, Between two and three hours. d, The inside of a trench after a night's work has roofed it in.

or to be run over and suffer a compound fracture of the leg and be treated in a city hospital, with the septic surgery we then practised!

What a contrast is the surgery of today! Hospitals now are the very safest places for those requiring an operation. The multitude of various operations done at present are known to every intelligent layman. Few have a mortality exceeding ten per cent. and most not exceeding one, two, or three per cent. The brain and the many organs in the chest and abdomen are freely and safely operated upon. Even stab and gunshot wounds of the heart itself are sewed up, and one half of the patients recover!

I have been so fortunate as to have seen and even taken some part in this wonderful progress. I *know* that the chief means of this progress in medicine and surgery is animal experimentation, and I respectfully submit that my testimony as an eye witness is of somewhat more value than the opinions of library surgeons and of ladies who have never studied medicine and surgery.

1729 CHESTNUT STREET.

CIRCUMSCRIBED SEROUS MENINGITIS.

A Case Occurring Acutely after Trauma; Operation; Improvement.

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Chronic serous meningitis, since it was brought to general attention by Quincke, has received steady recognition. Latterly, its surgical importance has been brought forward by Horsley. In this country, however, the cases reported are few, and hence each carefully observed case adds to the body of knowledge required for early diagnosis and successful treatment; this is especially so when unusual features characterize a case. Hence, we need offer no apology for fully reporting our notes of a case

in which the examination of the nervous system is perhaps more thorough than any yet published. The acute onset, an apparently traumatic etiology, an anomaly of sensibility of a rare type, and the obscurity of the diagnosis, make the case a particularly instructive one.

CASE. The patient was a farmer, a thin man, aged fifty years, who had been quite capable of hard work until ten days before admission. For two years, however, he had been feeling a numbness of hands and feet, which varied from time to time, and had latterly improved. He had been a rather heavy drinker, but had taken less lately. The paresthesias had first occurred after a severe attack of what was supposed to be influenza. So far as it could be obtained, the personal and family history was otherwise negative as regards etiological factors; for he was a married man with a grown up family and had been in rugged health until two years ago.

Present illness (as far as could be ascertained): Ten days before admission he fell out of a trap one night while intoxicated. He lay some time on the ground before being found, when he was picked up, dazed though able to walk and use his arms. He remained lame and weak until two days before his admission, when he awoke one morning unable to move arms and legs. Examination of the nervous system. Motility: Facial and neck movements strongly and regularly performed. No ocular abnormalities. Complete paralysis of all limb and trunk movements, except of that of the diaphragm, which was unimpaired, and the flexion of the right elbow, which could be feebly accomplished. Sensibility: Special senses not impaired. No gross loss of sensation could be detected except that a prick was sometimes called a burn. The sense of attitudes could not be examined on account of his delirium. Reflexes: Both deep and superficial were entirely abolished from the clavicle downward, with the exception of a slight extensor response upon stroking the left sole, and a slight response of the radial and olecranon reflexes. The pupils reacted promptly to light and accommodation. The control of the bladder and rectum was entirely lost.

Psychic examination: He understood questions, but often reacted in an irritable and annoyed manner, threatened the examiner when discomfort was produced, and was inclined to maunder. There was marked dysmnnesia; he believed that it was Tuesday and that the accident happened yesterday, whereas it was really Friday and the accident happened ten days before. He was disoriented also as to place, believing himself still at home. He was possibly hallucinated, as he looked up toward the corner and called his daughter. But there was no false visual sensations. There was a tendency to pseudoreminiscence. This delirium was of the type seen in intoxicative conditions, tending toward what is known as the Korsakow syndrome, which is very often of alcoholic origin; we attributed the patient's psychic condition to this cause.

General and surgical examination: The urine was normal. The heart and lungs were sound. The bloodvessels were rather hard and thickened. There were no defects of the locomotor system. The tongue was furred; but there were no manifest abnormalities of stomach or other digestive glands, except that the liver dullness was slightly diminished. There seemed to be a slight displacement of the sixth cervical spine. But the x ray revealed no dislocation, fracture, or torsion of the vertebral column. We thought that the symptoms were possibly the result of the rupture of a bloodvessel due to the accident, either within the spinal cord or without it under the dura; and a lumbar puncture was accordingly made. The cerebrospinal fluid, however, was reported by Doctor Phelps to be sterile, free from blood or its products, and not markedly rich in cellular elements. December 12th, two days later, delirium had ceased; he felt weak. He was conscious of the micturition which he could not arrest, but could force. There was no change in the motor symptoms, but the plantar reflex was now absent; and there was a slight quadriceps reaction when the patellar tendon was struck. The mechanical irritability of the muscles was greatly increased. Faradic electricity caused contraction of any muscle; but required a stronger current, and acted in some cases only when applied to motor point or muscle, sometimes failing to do so when applied to nerve trunks. Moreover, contraction

was slow. The cerebrospinal fluid was reported to contain an abundance of small and large brown cells in about equal amount. It contained no blood. The Noguchi biological test was negative. Bedsores were beginning to appear on left elbow and sacrum. There was a malar flush, perhaps due to the brandy he was taking. December 13th, three days later, condition had markedly changed into a modified Brown-Séquard syndrome. There was some voluntary movement of the left leg, and slight power had returned in the arms. The left side was hyperesthetic to pain and temperature. On the right side, there was complete anesthesia to pain and temperature as far as the sixth thoracic segment, shading off above to normal sensibility. Sensibility to touch was slightly impaired also, especially distally. The knee reflexes were more responsive to electrical stimulation. The sense of attitudes of the lower limbs was completely lost; and delirium had ceased, but incontinence still existed.

Doctor Carr removed the lamina of the fifth cervical vertebra; and reported an enormous effusion of clear cerebrospinal fluid, and that the meninges appeared thickened. Five days after the preceding examination, the left side was still hyperesthetic, though not so markedly. Attitude sense had not improved. Sense of pain was present in both tendines Achillis, but much delayed on the right side. The border of anesthesia to pain and temperature on the right side extended only to the eleventh thoracic. Touches were felt as low as the knee. There were no abdominal reflexes, but the left patellar was brisk, even upon tapping the right knee; on which side the reflex was absent. The left hallux extended upon stroking the sole. The bedsores were healing. Further examination was postponed. Two days later, he could lift either leg in bed, but weakly and with difficulty, especially the right. Could flex and extend either arm, better on the left. Iced water was not felt cold, but as pain on left side, although water at room temperature was felt as cool. Warmth and prick were readily detected. The hyperesthesia was now very slight. Above second thoracic, sensation was normal. On left side, thermal and pain sense had disappeared below second lumbar, and were imperfect as high as second thoracic. Deep pain was readily felt in tendons of foot and thigh; but hardly in the thoracic segments. The tuning fork was perceived on the anterior superior spines, but was very faulty below the knee. The lightest touches could be felt and localized anywhere left and right. Attitudes of lower limbs imperfectly recognized. As to reflexes, the toes no longer extended; but those of the right foot spread. Both patellar reflexes plus, right greater than left, Achilles unelicitable. Abdominal absent. Coarse fibrillary tremor of the left gastrocnemius. His general condition was much better.

December 23d, heat called cold on left side, and cold called pain as high as second thoracic. Slight hyperesthesia to prick. On right side, cold felt only on prolonged application. Heat not felt. Prick scarcely felt to seventh thoracic. Above, hypesthesia to second thoracic. Hypesthesia to heat on arms to first thoracic. As to reflexes, plantar flexion of great toes on both sides when sole was stroked the patella left greater than right. Triceps right plus. Spasticity diminished. Pronation and supination of the wrist could be weakly performed. Flexion of the wrist practically absent. December 25th, less spasticity. Retention and incontinence less complete. Feces came from the rectum while the sensibility of sacral 3, 4, and 5 was being examined. Over sacral 2, 3, and 4 on right side, pin prick was felt as such; but it was felt only as tickling on the left side over sacral 3 and 4, and was clearly felt on the glans penis. Prick was felt as low as ninth thoracic. Ice was felt as low as third lumbar. Reaction below was uncertain, but it was not felt below first sacral. It was delayed at first thoracic. On the right side boiling water was felt until seventh thoracic, below which delay appeared. There was delayed perception on the left foot, and at first thoracic.

The diapason of 100 vibrations to the second could not be felt below the ilia, and but faintly on the hands. All movements could be made, except extension of the right arm and right foot. The left foot was moved only involuntarily. Bedsores were improving. The patellar reflexes were weak although brisk; the Achilles and abdominal still absent, the plantar normal.

January 8, 1910, he had better control of the bladder than after the operation. The muscular power was im-

proving. There was even some action of the right triceps, and both legs were much better controlled. He could feel pin, warmth, and coolness as low as sixth thoracic; but on the left side ice was felt as a painful burn. Reflexes were exaggerated, including those of the triceps, but the radials were absent. On January 18th, he could feel coolness on the right side as low as the knee in front and the calf behind, although imperfectly. On the left side coolness was felt only on the popliteal area of second sacral, elsewhere it was still interpreted as painful heat. On the right arm temperature was not felt over third thoracic and cervical 8, 7, and 6. On the left arm temperature was well felt. Sensibility to prick was lost on the right side at first lumbar. Abdominal muscles contracted strongly. The flexion of the arms was weak. Extension of the arm and fingers was slightly improved. Extension of the arm, very weak. No fibrillary twitches present. The muscles responded to faradism, requiring, however, a stronger current than would a normal person.

Shortly after this, the patient returned home, as they were unable to keep him longer at the hospital. I append the notes taken at my request by a very competent nurse about ten days before the patient's departure. Six months later his death by inanition was reported to us by the family.

Patient is constantly in a state of nervous irritability to a greater or less degree. The lower limbs seem to be only part so affected. The knees are always flexed acutely, unless under resistance, as when the patient lies on his back. The tendons and muscles are in a high state of nervous tension, and feel like rods, particularly under the knee. Even when patient is not being moved, there is much twitching and quivering of individual muscles as well as of the whole limb. . . . Contractions may be excited by the movement of another part—arm or head, and seem to be excited by the thought of turning in bed. They are also excited by touching the limb at almost any point. . . . Contraction, even when most severe and painful, can sometimes be controlled by an effort of the will. Pain on extension of limbs is less if extension occurs by the volition of the patient. The ankles and left wrist have neither flexion nor extension. . . . By placing the patient's feet in water as hot as can be borne for ten minutes, there took place a marked relaxation of limbs and entire body and a lessening of pain. The painful pressure in bladder which was present at the time, was relieved. The mind became clearer and less active; and the patient fell into a deep natural sleep which lasted two hours. Patient has good digestion.

Symptoms of circumscribed serous meningitis are most variable, depending upon the situation of the lesions, the degree of compression, and the accompanying conditions. Differential diagnosis is hence very difficult, especially as the number of cases reported is small. The chief characters so far regarded as important are, for the most part, the product of experience gathered from Munro, six cases¹; Horsley, twenty cases.²

The unilateral origin is important. Pain is nearly always present in the neck, back, extremities, or breasts, or as a girdle pain. It may be taken for lumbago. The area of the pain is likely to be diffuse rather than referred to one nerve root as in tumor (Horsley). Paralysis may begin with weakness and stiffness unequal on the two sides, or it may begin suddenly followed by more or less paraplegia. Spasticity generally coexists.

The reflex phenomena and those of sensation vary greatly in different cases and in the same case at different times. There is no causation common to all cases. The disease has resulted from trauma, and has occurred after syphilitic meningitis, spinal caries, apical tuberculosis, multiple cerebrospinal

sclerosis, typhus, glioma, syringomyelia, influenza, and coryza. The condition is important because "it imitates the conditions produced by tumor, and the outlook under early surgical interference is good, while the outlook under a policy of noninterference is fatal." The fluid is usually retained under tension by a cyst wall of connective tissue or by adhesions which may be dense or light; but in some cases completely enveloping adhesions were not demonstrated.

Treatment consists in early laminectomy. The tense nonpulsating dura is opened and a small quantity of cerebrospinal fluid escapes under slight pressure. A tense pial membrane bulges up, and when it is opened, a clear fluid spurts out under great pressure. There is usually relief from painful and inconvenient symptoms soon after, thus removing the pressure by evacuation and drainage.

1705 N STREET.

TYPES OF MALIGNANT ENDOCARDITIS.

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Chicago,

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The term, malignant endocarditis, has come into general use in relation to that type of endocardial inflammation which produces the most distinct changes about the cardiac orifices, and which exhibits clinically, as a rule, a consistently progressive course toward fatality. The term, malignant, is not a satisfactory one, inasmuch as it denotes nothing more than severity and takes no account of the character of the affection or as to what extent the endocardial process may be but a local manifestation of a general infection.

The fact that practically all types of endocarditis are the result of the local effects of some infecting agent, whether benign or malignant, renders it impossible, without an endless subdivision, to classify this affection on an etiological basis. It is true that grave septic processes in association with endocarditis are generally due to streptococcus infections, even where the endocarditis completely dominates the symptomatology, yet, on the other hand, these severe infections may be due to an especially virulent staphylococcus infection.

A pathological classification is equally difficult because, while it is true that the fatal forms of septic endocarditis usually exhibit the local features of endocarditis ulcerosa, malignant cases of the verrucose type are also met with.

Symptomatic classification is also unsatisfactory, because in many of the cases the acute process is engrafted upon an old endocarditis to which many of the physical findings belong, and which will also affect subjective symptoms. Again, the extent to which the general infection affects other organs and tissues so modifies and diversifies the symptom complex, that symptomatic delineation is lost in the protean character of the manifestations encountered. We are forced, therefore, to abide by the terms, malignant or ulcerative, and the former is best because it is more descriptive of both clinical course and prognosis of the affection.

Our knowledge of acute endocarditis has only of late years begun to be formulated into something

¹*Surg., Gyn., and Obstet.*, 1910.

²*British Med. Jour.*, 1910.

concrete. Bouilland, in 1835, remarking on the statement of Laennec that endocarditis was a very rare disease, said that it was at least as frequent as pericarditis. At the present time, every clinician sees more cases of endocarditis than pericarditis, and as we study our cases more carefully we find that so called acute malignant endocarditis is met with as often as or oftener than clinically demonstrable pericarditis. In the last three months, six cases that may be classed as acute malignant endocarditis have come under my personal observation.

Many writers have endeavored to outline clinical types of endocarditis in relation to the infecting organism involved, and while this has been practically successful in connection with rheumatic types, streptococcal or not, the attempt has fallen short of the facts in malignant types, streptococcal or other, for the virulence of the streptococcus may be very different from that usually found in connection with rheumatism and its micrococcal associations, and their effects on other organs and tissues are very different.

In relation to the morphology of the infecting organisms, we may refer to the original contention of Poynton and Payne, that rheumatism was due to a streptococcus exhibiting peculiar properties, a theory that was not generally accepted because of the difficulty of isolating these organisms. Buerger and others have shown that, under certain conditions, the cultural and other properties of strains of streptococci may undergo marked alterations, and Rosenow has demonstrated that the various members of the streptococcus group may be transmuted one type into the other by animal passage, the various types thus produced exhibiting the morphological characteristics, cultural features, and the pathogenicity of the particular type into which they may have been transformed. The cultural recognition of these organisms he attributes to an adjustment of their aerobic or anaerobic properties to the oxygen pressure under which they are developed, and, on the same ground, explains their localization and peculiar pathogenicity in the different tissues of the body.

In virulence the various members of the streptococcus group rank as follows: *Streptococcus mucosus*, *Pneumococcus*, *Streptococcus viridans*, *Streptococcus rheumaticus*, and *Streptococcus hæmolyticus*. The virulent types are most aerobic and the less virulent types more anaerobic, the latter occupying tissues where the blood supply is poor—joints, scar tissue, etc.

The selective tendencies of these organisms as regards location in the tissues of the body, shown by Rosenow, is: For the joints, *Streptococcus hæmolyticus*; for the joints and heart, *Streptococcus rheumaticus*; for the heart only, *Streptococcus viridans*; and for the virulent type of the pneumococcus, the lungs, while the less virulent type of the pneumococcus has selective tendencies similar to *Streptococcus viridans*. The selective tendencies of these various organisms is also changed in accordance with that of the type of organism into which they may be transmuted.

The relatively avascular tissue of the cardiac valves presents a selective focus for such anaerobic organisms as *Streptococcus viridans* and *Streptococcus rheumaticus*, and the endocarditis produced

is essentially embolic in origin with subendothelial hemorrhage. Vegetations develop upon this foundation, which contain masses of organisms, more or less leucocytic infiltration, and maintain, perhaps until ulceration follows, an endothelial covering. The protection thus afforded the organisms favors the occurrence of the malignant types of endocarditis, both in recent infections and in reinfection of an old endocardial lesion.

In the rapidly fatal cases of acute endocarditis, the associated exocardiac lesions may have a very disturbing effect on the symptomatology of the case.

CASE I. A young woman recently entered the hospital in a comatose state. The only history obtainable was that she had not felt well during the day while at her work, fainted while getting off a street car in the evening, became unconscious, and was brought to the hospital. Her pulse was 140, temperature 105°F., respirations 35 and fairly deep. She was moderately cyanotic, had slight edema of legs and hands, several red areas on hands, wrists, and feet. The heart was moderately enlarged and showed a presystolic and systolic mitral murmur and a presystolic thrill. The lungs were slightly dull all over with harsh, high pitched respiration; the blood showed 8,800 leucocytes. The urine contained granular and epithelial casts and much albumin. She lived only a few hours. No blood culture was obtained either before death or at the autopsy, which was a coroner's, and showed an old mitral stenosis, thromboculcerative endocarditis, implantation mural endocarditis in lining of left ventricle underneath the posterior mitral cusp, petechial hemorrhages in lining of epicardium, infarction of outer wall of left ventricle, petechial hemorrhages in tricuspid valve, beginning lobular inflammation of lungs, embolic hemorrhages in bowel and skin. Evidently we had here infection from some virulent strain of streptococcus.

In the orthodox type of malignant endocarditis running a more or less protracted course before complicating conditions present themselves, there may be adherence to a more or less definite temperature and pulse course consistent with certain bacteriological etiology, but in the fulminant types, whatever the infecting agent may be, pure or mixed, the pulse and temperature suggest little relative to the character of the infecting agent, except as to its virulence.

Herbert French has pointed out that in old cases of endocarditis the temperature may be below normal, and, with an associated infection, may present only a moderate rise. Jürgensen says that there is no type of fever that may not occur; that the temperature range may be from 93.2° to 109.4° F., and that there is no advantage in trying to establish a type of fever for endocarditis.

The pulse curve or tracing is also an element of uncertain diagnostic importance. Disturbance of heart action is always present and functional integrity is always impaired. The latter is always more apparent upon change of position or on very slight exertion than it is in relation to the temperature curve. The degrees of cardiac ataxia range all the way from the "cardiac uneasiness" characteristic of the early period of the disease, to various types of heart block, which may be present in actively septic cases or may occur at any time in connection with infections engrafted upon old cardiopathies.

We cannot be sure how far these manifestations are due to myocardial extension or to involvement of the bundle of His. Neither can one say how far these conditions enter into the production of the auricular pulsation in the second left intercostal

space and the double apex beat sometimes present in the early stages, and which Tessier explained to be due to the contraction of the auricle causing the pulsation and the first apex beat. The impressive thing about the heart action is its excitability and apparent dynamic loss in relation to comparatively slight change in volume.

The following case presents a clinical history dominated largely by the accident of cerebral hemorrhage:

CASE II. Woman, aged twenty-five years, came to hospital in coma, September 6, 1914, 6:30 p. m.; comatose ten hours. No history obtainable. Examination: Right pupil dilated, no response. Left pupil normal, responded. Head and neck negative. Lungs negative. Heart usual size, double murmur at apex. Abdomen negative. Slight purulent discharge from vagina. Right hemiplegia. All reflexes exaggerated, except abdominal which was absent. Babinski, Oppenheim, Chaddock, and Gordon present on both sides. Ankle clonus only, on right. Temperature 98.6° F., pulse 72. Urine negative. Leucocytes 12,500. The same evening the temperature rose to 102° F., and the pulse to 108. Each continued an irregular course up to death on the evening of the fifth day, but the variations in the pulse were more marked than those in the temperature. At death the temperature was 108° F, and the pulse 160.

Three c. c. of a twenty-four hour five c. c. blood culture in bouillon was plated and gave a I colony growth which showed a Gram negative diplococcus. This was transplanted on slant blood agar and a luxuriant growth of the same organism was obtained. This was inoculated in a rabbit's eye, and after three days was negative. Diagnosis: Acute endocarditis, cerebral embolism. The patient continued comatose for five days before she died. During this time there was only slight variation in the reflexes, with slight motion in the right leg two days before death.

Autopsy: The principal findings were thromboulcerative mitral endocarditis, cerebral embolism, cloudy swelling of kidneys, minute petechial hemorrhages in epicardium and the pelves of the kidneys.

The organism obtained in this case was a Gram negative diplococcus corresponding to the gonococcus. Unfortunately, smears were not made from the vaginal discharge, nor was any blood obtained from the heart, post mortem. The essential feature of the pulse-temperature curve—the daily increase until an unusually high range was exhibited at death, must be attributed to the cerebral complication.

The following case illustrates a pulse and temperature curve somewhat characteristic of the type of infection present, a staphylococcus:

CASE III. Man, laborer, aged nineteen years, admitted November 7, 1914. Sick for two months; complained of sharp pain in precordium, progressive weakness, dizziness. One chill about a month since. Skin had icteroid tinge. Urine albuminous, 1,012, no casts. Spleen enlarged. Heart; right border at right sternal edge; left border four cm. to left of midclavicular line; upper border at third rib. Apex beat diffuse in fifth interspace. Systolic murmur transmitted to left. Second pulmonic intensified. Pulse small, regular, equal, rate 108. Blood pressure, systolic, 118; diastolic, 70. Blood: reds, 1,450,000; whites, 20,900. Hemoglobin 33 per cent. Dare. Differential normal. No change in morphology of reds. No plasmodium malariae. Blood culture gave *Staphylococcus albus*.

The patient was in the hospital twenty-four days showing gradually progressing weakness and anemia. His heart gradually increased in all its dimensions, the original murmur covered a larger area and then developed a to and fro murmur at the base, also a Duroziez murmur in the femorals. The pulse, which was uneven from the first, became quicker and showed a dicrotic quality. The second sound at the apex was inaudible at times; pulmonic second sound more accentuated and attended by a palpable impulse. Liver and spleen slightly enlarged. One severe attack of nose bleed. Anemia progressing. Reds increased 420,000, then dropped 460,000. Leucocytes, 37,600. Slight edema of ankles.

During residence in hospital the pulse-temperature curve

was very irregular. Through the first week the pulse maintained a rate corresponding to the variations in temperature but consistently showed a lower curve. The highest temperature was 103.4°, lowest 99.2° F. The highest pulse was 114, and the lowest 82. During the second week the same irregularity of pulse and temperature was present, the pulse following the temperature, not so consistently, but gradually acquiring a higher curve than that of the temperature. The highest pulse was 140, lowest 84. The highest temperature was 102°, lowest 97° F. During the third week the pulse-temperature variations corresponded fairly well, the irregularity was not quite so marked, but the pulse curve was much higher than the temperature. Highest pulse, 140; lowest pulse, 116. Highest temperature 100°, lowest 97.2° F. Apparently there were no complicating conditions in this case sufficiently marked to affect the pulse temperature curve.

The following case illustrates the implantation of an acute endocarditis upon an old cardiac lesion, which, in connection with an anatomical anomaly present, accounts for an unusual localization of endocarditis in women:

CASE IV. Polish woman, aged fifty-two years, admitted September 11, 1914, as a chronic alcoholic with old heart lesion and probable typhoid. She spoke no English, was irrational, and often only partly conscious. Temperature,



FIG.—Ulcerative endocarditis.

99.8° F., pulse, 104. History, as obtained through interpreter, of no value. Examination showed, aside from an enlarged liver and palpable spleen, nothing of interest, except as to heart. This was only slightly hypertrophied, but presented systolic murmurs at both base and apex, the basic murmur being loud and rough in character. Urine, negative. Blood: Reds, 3,790,000; whites, 30,600; polymorphonuclears, ninety-three per cent.

The patient was in hospital thirty-six days. During this time she was in a semicomatose, typhoid state, with very irregular pulse and temperature. The pulse curve did not follow the temperature curve, but consistently remained below it until the last two days of life. The highest temperature was 104.2°, and the lowest 98° F. The highest temperature was coincident with temporary lung findings. The lowest pulse was 80, the highest 134. After the third day, the urine contained albumin, casts, and, after the tenth day, blood. There were no petechiae on the surface of the body.

On the eleventh day, blood culture gave a capsulated Gram positive diplococcus. The same organism, apparently a pneumococcus, was recovered from the blood twice subsequently, from a transplant of the culture, from the spinal fluid, and from heart blood obtained post mortem. The spinal fluid was under some pressure, showed 40 cells per cm., and a differential count gave 37 per cent. polymorphonuclears, and 63 per cent. lymphocytes. No

malarial organisms in blood. Widal negative; vaginal smears negative. Diagnosis, acute endocarditis, alcoholic cirrhosis.

The marked irregularity of the pulse-temperature curve persisted. Patient gradually grew worse and died on the thirty-seventh day in the hospital.

The post mortem findings were as follows: Marked acute thromboulcerative endocarditis of aortic valves. Bicuspid aortic valves. Hypertrophy of myocardium of left ventricle. Multiple minute hemorrhages in epicardium and root of aorta. Nodular calcareous sclerosis of aorta. Marked arteriosclerosis. Marked atrophic cirrhosis of liver. Marked hyperemia of spleen.

In the figure may be observed, beside the interesting anatomical peculiarity of a bicuspid aortic valve, the ventricular hypertrophy due to the old aortitis, the sclerotic process in the aorta, and the mass of vegetative products, the result of the recent infective endocardial inflammation. Whether the organism found in this case was a pneumococcus or a converted strain of *Streptococcus viridans* is a question. The lung findings during the progress of the sickness were such as might develop from most any kind of mixed infection, and were temporary and evidently only incidentally related to the fatal illness.

My acknowledgments are due to Dr. Allan Hruby, my senior intern, for interest shown and work done in these cases. His diagnosis in the two women was corroborated post mortem.

108 NORTH STATE STREET.

AN APPARATUS FOR AMBULATORY TREATMENT OF FRACTURE OF THE TIBIA.

BY CARLO SAVINI, M. D.,
New York.

Ambulatory treatment is not to be used indiscriminately in every fracture of the leg. There are cases when, for the general conditions of the patient or for reasons depending upon the fracture itself, it would be unwise even to attempt it. But once this method of treatment has been adopted, it is of great comfort to the patient if the apparatus is constructed in two divisible sections so that the heavier can be removed during the night.

As soon as possible after the accident, the fracture is reduced and the fractured leg is set in a box apparatus and kept there for about a week until the swelling begins to regress. Then a plaster of Paris cast is applied around the leg, immobilizing the ankle and the knee joint. To do this, the plaster of Paris bandages are cut in pieces, each to measure the circumference of the leg, and are disposed in the same way as we dispose the common bandages in a scultetus.

When the box apparatus is undone, the skin of the leg is covered with a thin stratum of petrolatum; then the surgeon raises the fractured leg, keeping the fragments immovable, and an assistant removes the box and

puts in its place the plaster of Paris scultetus. If well done, the raising of the leg does not cause any pain to the patient.

Then the leg is placed upon the scultetus; this is wet with water and each bandage is applied directly over the bare skin. During this time the assistant maintains the foot in good position. No cotton padding is used. The resulting cast is very light, and if it is not sufficiently resistant it may be reinforced on its sides by plaster of Paris bandages.

When this first apparatus is dry, it is covered below the knee for about five inches, with a common gauze band-

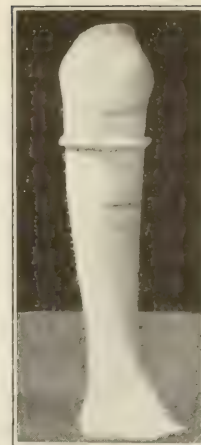


FIG. 2.—The immovable part of the Savini apparatus.

age, and another plaster of Paris cast is applied to cover this bandage. In this way the leg, for about five inches just below the knee joint, is covered by two casts, one modelled exactly on the other, but separated by the common gauze bandage. This arrangement permits a little sliding of the second cast on the first.

The same plaster of Paris bandages used for the second cast are so disposed



FIG. 3.—The stirrup with shoe and leglet attached; represents the movable part of the apparatus used in daytime to walk.

as to make a relief or ring at the level of the tuberosity of the tibia. This ring should be about half an inch wide and one inch thick, and when dry it gives a good support to a steel stirrup which permits the patient to get up and walk.

The stirrup should be longer than the leg, so that when resting on the floor, the foot remains suspended. This movable and easily applied stirrup is made of a flat bar of steel, half an inch wide and one sixteenth of an inch

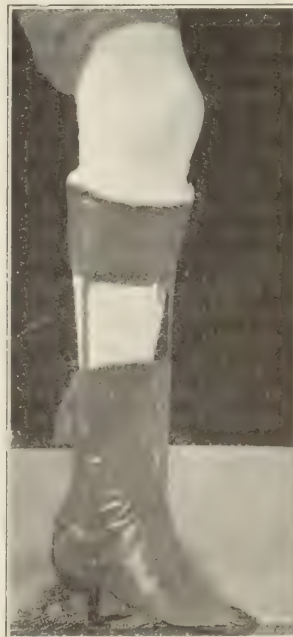


FIG. 4.—The apparatus in place.

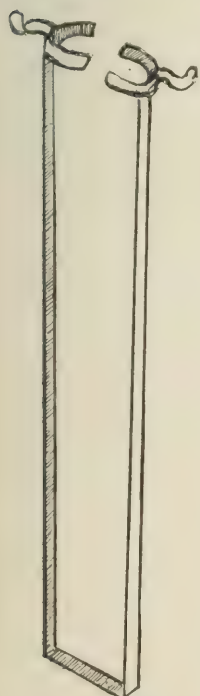


FIG. 1.—The steel stirrup. On top of the branches of the stirrup are attached two pliable brass plates which serve to fix the plate around the leg and around the ring.

thick, and is the essential part of the apparatus. To this stirrup is attached a leather shoe. A leather leglet is also necessary to keep the apparatus close to the leg. The shoe being laced in front can be easily put on and removed at night like any ordinary shoe. The ring is a great convenience at night, as it helps the patient to turn the fractured leg in bed. Altogether, the casts and the shoe weigh not quite three pounds.

This treatment was used in a case of fracture of the middle third of the shaft of the left tibia of a patient forty-five years old. I saw the patient, October 29, 1914, soon after the accident. He left his bed on the tenth day, and in a very short time he was able to walk about on crutches and to go up and down the stairs of the hospital. He left the hospital to attend to his business less than three weeks after the accident. By the beginning of December, he had discarded the crutches and used a cane. At first, when going to and from business, he took a taxicab, but by December he was so confident in his ability to walk that he used the subway. On removing the casts, December 19th, a good callus was found.

31 WASHINGTON SQUARE WEST.

THE TOBACCO HEART.*

BY HARLOW BROOKS, M. D.,
New York,

Visiting Physician, City Hospital and Montefiore Hospital.

I have found myself so frequently using the term "tobacco heart" in connection with my practice that it has occurred to me during the past eight years earnestly to question myself as to just what is meant by the term, and to inquire if there is in reality any definite clinical or pathological picture which might be correctly described under so definite a term. My interest became first aroused in the subject years ago, when as examining physician for the recruiting service of the United States army, I was able to examine a very large number of supposedly healthy young men, many of whom were more or less addicted to the intemperate use of tobacco.

I noticed especially that in the case of reenlistments many old soldiers, tobacco habitués, first rejected for irregular and inadequate heart action, if held over for reexamination, usually passed very satisfactorily. When these men were kept off tobacco for a week or more, most of them would eventually pass perfectly the very severe physical tests imposed by regulation and custom, even in instances where the early condition seemed very grave, apparently incurable. Practically the same experience was found as a medical officer of a National guard regiment composed of a more pretentious social class of men though of about the same physical status, habits, and age. Nammack (*Transactions Alumni Assoc., Bellevue Hosp., January 6, 1915*) reports similar findings in the examination of candidates for the police department of New York city.

Experience with patients in practice, where complicating conditions are less likely to confuse than in hospital cases, has been very generally the same, and though I still feel uncertain as to many details

of the subject of tobacco heart, my timorousness is not entirely from lack of study or of experience. The exact status of this question appears to be of very definite importance, for though we constantly advise for or against the use of tobacco, particularly in heart cases, I find that most physicians have a very vague conception of the precise effects and defects of the tobacco habit, and it would seem wise, if possible, definitely to establish them and to eliminate from our opinions of the subject, precedent and prejudice.

HISTORICAL.

The study of the effects of tobacco on the circulation is by no means a recent topic, in fact the older literature presents more frequent discussions than that of recent times. Tobacco was introduced into Europe by the returned voyagers to the New World, where the drug was found to be very widely employed in the sacred and secular ceremonials of the native Americans.

The introduction of the use of tobacco at first presented the aspects of a fashionable fad; quite naturally it was shortly followed by numerous discussions. This was the period of the dominance of the theological viewpoint from which vantage ground it seemed perfectly obvious that pretty nearly everything which was agreeable must therefore assuredly be sinful, and the earliest literature of the day, professional and particularly of the theological press, was filled with articles on the pernicious or salutary effects of tobacco, especially on the soul and morality. As medical men we may profitably pass over this abundant literature which has, by the way, been continued by the same class of authors up to the present day, to consider a few really careful studies, mostly clinical, but some of them including experiments of no mean grade of shrewdness and thought. Many of the supposed scientific articles were written by medical men, however, who were so tinctured with ideas on morality, sin, etc., that we cannot but conclude that the art of moral advertising was quite as popular then as now. Occasionally, data of real scientific value are discoverable in this mass of trash.

Among the most notable of these articles was an essay included with a series comprised in the *Via recta ad Vitam longam* by one Dr. Theodore Venner, a Doctor of Physic in Bathe. Venner's article, to which I particularly refer, was published in 1650. It is entitled *A Brief and Accurate Treatise concerning the taking of the Fume of Tobacco which very many in these days do too licentious use, in which the immoderate, irregular, and unreasonable use thereof is reprehended, and the true nature and best manner of using it, perspicuously demonstrated.*

In Venner's peroration, concerning the pro-tobacco enthusiasts, he states that "the immoderate use of tobacco hath made them insensible, without sense." The fact that many smokers still remained alive he explained thus: "By long use and custom it becometh familiar to their bodies." Again, in regard to the use of the weed by the Indians, he says: "But this custom of taking the fume, hath so far bewitched them (as also it hath and daily doth many of our people) as that they also oftentimes take it for wantonness and delight, wherein they have so great a pleasure, as they desire nothing more than to make themselves drunken and drowsie with

*Read before the Medical Section of the Buffalo Academy of Medicine, February 10, 1915.

tobacco." He concedes that "it doth for a time expel melancholy and excite limpid spirits." Though Venner's article contains much to amuse and a good deal of practical clinical observation as well, it is so tinctured with moral observations as to minimize its value as a scientific document; little knowledge of real value seems to have been established by it.

Even in 1878, Dr. William Alcott, still strongly under the depressing influence of theology in medicine, in an essay on tobacco, quotes Rush as saying that "even when used in moderation, tobacco causes dyspepsia, headache, tremors, vertigo, and epilepsy." Alcott lays all manner of calamities from suicide (p. 38) to yellow fever to the use of tobacco. Imbued with the "modern" idea of the importance of German cultural opinions on the subject, he makes the modest announcement that "German physicians state that one half of those whose demise occurs between the years of eighteen and thirty-five die from the effects of smoking." Alcott cites one interesting and important case in which collapse of a circulatory type occurred in a child to which the residue from an old pipe had been applied to the skin for the relief of a local disease.

Among the first really important scientific contributions to the subject is an *Experimental Dissertation on the Chemical and Medical Properties of the Nicotiana tabacum of Linnaeus* by Edward Brailsford, of Charleston, published in 1799.

In criticizing the theological viewpoint previously dominating discussion of the use of tobacco, he makes the statement that "it would be as inconsistent to stigmatize this plant with the appellation of poison as it would be to announce a crust of bread toxicous in its quality, because it has in some cases entered the trachea and occasioned instantaneous death."

Brailsford showed by experiment that the drug accelerates heart action, apparently more from smoking than from gastric absorption. He demonstrated also that the pulse became slowed after the period of nausea had appeared, even falling then below the normal rate. He gives a graphic and realistic account of his first experimental smoke, the accuracy of which can probably be corroborated by many of us from very personal observation.

Passing now to the relatively recent studies of the subject, one essay stands out as a monument of splendid and thorough research of the entire tobacco question from every scientific standpoint. It is a prize essay written in 1885 by a young medical man named Hobart Amory Hare. Doctor Hare has furnished medical science and literature with many valuable contributions during his subsequent active and always useful life, but none of his numerous writings show a more scientific, brilliant, and open mind concerning the subject in question than this early production. Hare makes one significant statement which aptly summarizes and criticizes all previous work in regard to the subject: "Most of the writing on the subject has been done by those who were enemies or friends of the weed."

In making this clinical study of the condition, I have, of course, found it extremely difficult to separate the symptoms or lesions which are caused by the use of tobacco from other concomitant conditions; the same statement is also true of the lesions in the cases which came to autopsy. I have made

no attempt carefully to study the effects of the various drug components of tobacco, neither shall I attempt to discuss thoroughly the relative degrees of effect produced by the various methods of taking it, whether by smoking, chewing, or as snuff. Nearly all of the cases which I have been enabled to study, however, have been of smokers, but it must be noted that most smokers from chewing of the cigar stump or from the pipe stem absorb a certain amount of material by the gastrointestinal tract.

I have been impelled to take up the study of the effects of tobacco on the heart at this particular time, because of the fact that we are now strongly disposed to consider cardiac disorders from the standpoint of etiology and prevention. The questions of whether or not we have overestimated the importance of tobacco in the production of cardiac disorders and of whether or not we are justified in permitting the use of tobacco in heart cases, is then obviously a matter of very great importance. It would appear very necessary that we now ascertain, so far as is possible, whether the drug really causes any pathological alterations, or if the symptoms which it unquestionably produces are evanescent and not of serious significance.

PHARMACOLOGY.

The acute circulatory effect of tobacco administration is to produce an acceleration of pulse rate of quite marked degree. With this is usually a slight rise in blood pressure, which occasionally reaches from ten to fifteen mm. Hg. In persons unaccustomed to the use of the weed the period of pulse acceleration is succeeded by one of slowed rate which in susceptible individuals may fall very low, especially if marked nausea supervenes, as it customarily does in persons not habituated to the drug. This stage is accompanied by a more or less somnolent mentality and a fall in blood pressure. If followed by nausea and vomiting, the pressure usually quickly returns to the normal. These statements correspond in general with the views held by Hirschfelder (*Textbook*). Lyle (*Fortsch. d. med.*, 678, 1905) states that pressure elevation is due to the irritative effect of nicotine on the vasomotor centre.

These are the most striking, acute circulatory effects in those unhabituated to the drug, but as Venner quaintly says, "by long use and custom it becometh familiar to their bodies," and in the habitual tobacco user the customary chew or smoke apparently produces no effect whatever on the blood pressure or heart rate. In those numerous persons whom tobacco affects as a sedative, and in whom a smoke allays nervousness and mental irritability, it unquestionably lowers blood pressure and slows an abnormally rapid heart. The use of the drug given as infusions per os, or in the form of tobacco poultices, pushed to the point of nausea or vomiting as effectively employed by the ancient physicians in nephritis, etc., certainly caused a fall in pressure, perhaps at times beneficial. Not infrequent cases of fatal or serious nicotine poisoning are reported from such applications, mostly by the older authors, many of whom greatly feared the drug.

The real crux of the question, however, is whether or not the chronic use of tobacco causes rhythmic or rate disturbances or hypertension of a persistent

character. The solution would appear to depend upon whether or not it really causes habit or tissue changes of a permanent type.

The pharmacology of tobacco, as Lee states, differs very much according to individual and perhaps also depends somewhat on the form and grade used. It is generally conceded that the chief effects of the leaf are caused by the nicotine content, though some students, among them Brunton, attribute an important role to the pyridine and picoline bases. The experiments of Hare, however, have apparently shown that the action of nicotine alone is practically the same as that of tobacco as a whole, and for clinical purposes at least it appears that we may also safely ignore the possibility of a cyanide effect. Nicotine is largely or entirely dissipated in the complete combustion of tobacco. This fact has been utilized by several German firms which produce a cigar in which the nicotine combustion is alleged to be so hastened that none remains to be absorbed by the smoker. These cigars are of such poor grade and so costly that I hardly think that their use will ever become generalized, even if they produce the result stated for them. In smoking these cigars, I find that an acceleration of pulse rate, early slight increase in blood pressure, slight nausea, and very mild anginal symptoms appear in quite as marked degree as when ordinary cigars of the same grade are used. The moisture which collects in the stump also seems to be as potent in nicotine effects as in the usual cigar. The flavor from the standpoint of a tobacco epicure is, however, very inferior, compared to American, Philippine, Cuban, Mexican, or Porto Rican tobacco.

The use of water or long stem pipes, when kept clean, accomplishes at least the same purpose. Loosely rolled cigars or incompletely packed pipes are recommended by some, so that nicotine combustion may be facilitated; from this theory cigarettes should be the most desirable "smoke," a statement few are likely to urge. Hare states that large doses of nicotine paralyze the pneumogastric, smaller ones stimulate it. Benham (*West Riding Lunatic Asylum Reports*, iv, 1874) finds that the drug does not affect the heart muscle, and this opinion, also held by Hare, now appears to be generally adopted, even by modern pharmacologists and pathologists.

As to the pharmacological effect on the arterioles of the heart, Claude Bernard found, first, a contraction of the bloodvessels with subsequent dilatation, but Bernard states that this bloodvessel effect is uncertain. Bruce, Miller, and Hooker (quoted by Hirschfelder) found that nicotine, which we must certainly accept as the chief drug agent in tobacco, produces a vasoconstriction of very definite character. They state that in man this constriction is probably succeeded by a splanchnic dilatation of the abdominal vessels in particular, a condition which doubtless has much to do with the symptom of syncope which appears in some grade in acute tobacco poisoning with almost universal regularity.

Notwithstanding the well known tolerance of habitual users of the weed, experiments seem to indicate that the effect in chronic and in new smokers is practically the same, except in degree. Hare apparently first established the interesting observation that the presence of food in the stomach lessens the

effects of the drug, except in chronic smokers where no effects whatever are manifest. S. A. Brown suggests that this increased tolerance is dependent on the activity of the gastrointestinal tract at this period perhaps in breaking up the nicotine absorbed by that avenue.

PATHOLOGICAL ANATOMY.

Although tobacco in times past has been quite extensively employed in medicine, especially as an emetic and sometimes for its antispasmodic and sedative effects, it has now practically passed out of use as a medicament and is used only as a luxury or condiment. The point of greatest interest to us now lies in the question of whether or not it produces serious pathological alterations in the tissues of the body, and concerning no organ is this question of greater direct bearing than concerning the heart, which of all the organs seems the most susceptible to the effects of tobacco. Hirschfelder believes that the greatest sufferers from tobacco heart are those youths who inhale the smoke and thus subject themselves to the immediate effects of the nicotine. It is probable that the well known susceptibility of young tissues to most drug effects explains this effect. Hirschfelder believes that the continuous and more or less protracted stimulation of the cervical sympathetic ganglion cells is the chief serious factor. So far as I can learn, this assumption has thus far been inadequately substantiated.

Although the cardiac symptoms of acute tobacco poisoning seem to be largely manifested as a result of pneumogastric action, I have found no observers who report actual morphological changes in the nerve trunks, neither have we observed a tendency toward neuritis as a result of uncomplicated tobacco habit of any degree. I have never observed an instance of true neuritis in patients, except where the tobacco habit was complicated with such definitely primary conditions as alcoholism, diabetes, or metallic poisoning, nor did it occur once in the fifty-four cases of chronic excessive tobacco users which I have studied post mortem. In this regard the well known condition of tobacco amblyopia is of great interest. Ophthalmologists have universally stated to me that this condition does not become permanent, but that with rare exceptions it rapidly disappears when tobacco is discontinued.

Before I undertook a serious study of this condition, it was my impression that the effect of tobacco poisoning on the heart was largely a result of the drug action on the muscle. This impression appears to be unfounded according to the work of practically all thorough students of the subject, and my own studies have now fully convinced me of its error.

EXPERIMENT I. Adult rabbit, weight 1,330 grams. Exposed for 121 consecutive days to the dense fumes of burning tobacco for a period of from 5 to 10 minutes, or until prostrated. Animal appeared to develop no increased tolerance for the tobacco, but lost flesh and became generally ill. Weight fell to 1,000 grams. Finally died from a bronchopneumonia, complicated by pericarditis and general adjacent myocarditis. The heart muscle showed a myocarditis extending inward from the pericardium together with very pronounced acute parenchymatous muscle degeneration. Nothing indicative of chronic alterations of any character. Macroscopic and microscopic examination of the aorta and of numerous sections of the coronary

vessels and their minute ramifications showed absolutely no morphological alterations.

EXPERIMENT II. Adult rabbit, weight 1,400 grams, given daily or alternately doses of from one c. c. to 3 c. c. of a 10 per cent. aqueous decoction of tobacco, enough in most instances to cause profound illness. Animal began to exhibit definite symptoms of chronic illness 18 days before death, but died from accidental tracheal intubation, with a subsequent general infection.

The experiment extended over a period of 93 days, and animal fell to a weight of 1,200 grams. The heart muscle showed acute parenchymatous degeneration with a certain degree of fatty change, but nothing which could be directly attributed to the prolonged action of the tobacco. Macroscopic and microscopic examination of the aorta and of the coronary arteries and veins with especial reference to their smaller ramifications showed no changes.

I. Adler (*Jour. Med. Research*, N. S., III, 2, p. 309), from his extensive experiments in the administration of tobacco extracts to rabbits, reports no changes in the myocardium, even as a result of the prolonged giving of the drug. Two experiments conducted to determine this point give the same negative results. Nevertheless, in my fifty-four autopsies nearly all showed muscle changes, brown atrophy leading with nineteen instances, fatty and fibroid changes closely following. The papillary muscles were notably diseased in eleven cases. This fibroid involvement of the papillary muscles may possibly be accounted for on the basis of being a result of frequently recurrent tachycardia which results from the tobacco habit.

If muscle lesions are eliminated, the crucial question then devolves itself on the heart, vessels, and whether or not they are affected by the abuse of the weed. As to this very important point, much diversity of opinion appears to exist. Adler (*loc. cit.*) evidently believes that no lesions are produced, except possibly in the very smaller vessels. Remlinger, Grassmann, and Ratzeburg (quoted in *Ergeb. der algem. Path.*, 11, p. 576, 1910), however, all believe that nicotine has a very definite effect in the production of arterial diseases. Ricketts (*Jour. for Path. and Bact.*, XII, 15, 1907) is of the same opinion, and Loeper and Boveri (*Bull. de la soc. anat. de Paris*, 1907), who gave nicotine in pure form to rabbits for eighty-four days, produced atheromatous changes in the aorta like those seen in experimental suprarenal poisoning. Erb (*Münch. med. Wechenschr.*, 21, 1904; *Deutsch. med. Wochenschr.*, 47, 1906) places the blame for an arteritis obliterans of the terminal vessels on tobacco. Fifteen of Erb's patients were enormous smokers of cigarettes. Idelsohn (*St. Petersburg med. Wochenschr.*, XXVII, 5, 1903) is, however, after a very wide experience, of contrary opinion.

Since the view that coronary change was a very frequent result in tobacco users, has been largely my own opinion, I have made an analysis of the condition of the coronary vessels in the fifty-four autopsy cases of tobacco users analyzed in this paper. I find that seventeen instances showed marked coronary sclerosis and nineteen the same change in lesser or slight degree. Of course, all syphilitic cases were excluded from the analysis. It is important to note, however, in this regard that thirty-seven cases—just one more than presented coronary disease—showed a chronic endocarditis. We certainly cannot attribute the endocarditis to tobacco, though we are justified in assuming that the cause of the endo-

carditis may have produced the coronary disease. We have strong clinical evidence, however, that similar lesions are accentuated or brought about by tobacco in other forms of arterial disease, for example in the thromboangitis obliterans of Burger, in many instances of intermittent claudication, and very probably in general arteriosclerosis of the fibrotic type. That even here tobacco is the dominant or sole factor is an unproven statement, however.

The theory of transitory coronary constriction as a precursor or actual cause of changes in tobacco poisoning, has received the confirmatory testimony of many workers. Such is the well founded opinion of Erb and of Kulbs (quoted in *Ergeb. der algem. Path.*, 11, p. 567, 1910) and of A. Simon (*Therap. d. Gegenwart*, 9, 1907). According to Hirschfelder, this assumption is disproved by Bond and himself, who showed that the flow through the coronary veins is really increased by tobacco. Though this may be temporarily so during short and experimental periods, it is difficult to explain otherwise the very numerous typical instances of angina pectoris which arise in tobacco poisoning and which disappear in most instances entirely when the weed is discontinued.

In my opinion, which is based on anatomical studies and especially on the clinical observation of many instances of tobacco heart, coronary constriction is, in all probability, the lesion which is the basis of the frequent anginal attacks which characterize the condition and which almost without exception promptly disappear when tobacco is discontinued. Study of several of these cases during the actual attack have entirely eliminated from my mind the question of a dilatation or of an essential muscle defect, and since complete relief follows the discontinuance of the tobacco, clearly indicating a transitory condition, I cannot assume otherwise than that the elemental condition is one of arterial spasm affecting the coronary vessels. Similar conditions affecting other arteries, as those of the leg and arm, probably also those of the pancreas, have been observed by me in tobacco poisoning, and since complete relief followed the giving up of tobacco in these instances, it seems but fair to attribute a causal effect.

CASE I. Patient, H. B., a lawyer, aged thirty-eight years, in perfect health, but living under great nervous and mental stress. Was an inveterate, almost continuous smoker of pipe, cigars, and occasional cigarettes. The heart showed under excitement marked periods of arrhythmia, intermission, and occasional attacks of mild angina with an almost continuous sense of weight in the precordium. No evidence of endocarditis or of definite cardiac lesion of any certain type. He also complained of frequent typical attacks of claudication in the tibial vessels with a sense of numbness and of itching in the feet. In the attacks, severe cramplike pains appeared in the legs, typical of claudication, but these attacks often came on entirely independent of exercise, and were most frequent at night or immediately on rising in the morning.

Complete relief followed the cutting off of tobacco. The patient is now entirely free from symptoms of this character, although he has since returned to the moderate use of tobacco. That recurrent attacks of this nature, especially when associated with other determining factors, such as hypertension, approaching old age, alcoholism, lead poisoning, or a nephritis in particular must predis-

pose to a true coronary arteriofibrosis seems a most logical conclusion.

Though angina pectoris is a very frequent symptomatic picture in old tobacco users, and though in some few long standing cases it becomes unrelieved by a cessation of the use of the drug, still it is noticeable that in my series of fifty-four autopsies, though coronary sclerosis of greater or less degree was found thirty-six times, no case gave a history of definite stenocardia. On the other hand, it is important to state that eighteen instances gave a history of more or less indefinite cardiac disturbance and twelve of the cases died a cardiac death.

SECONDARY OR DETERMINING FACTORS.

Very many persons may use tobacco excessively throughout an entire lifetime without experiencing the slightest symptom of circulatory disturbance, nor yet develop any pathological changes which may be definitely traced to the condiment. As explanatory of this fact, we must recall the marked tolerance which the tissues of the body attain, as Adler states, toward tobacco. There are also other factors which appear to have very much to do with the appearance or nonappearance of disturbances. Poynton (*Textbook*) states that ill effects are for example most often not marked with those who come from a nonsmoking family. My own opinion, on the contrary, is that symptoms of disturbance so far as the circulatory system is concerned, are more likely to appear in descendants of smokers than in those free from this family trait. It has already been said that there is a universal and well founded belief that the use of tobacco on a full stomach is less likely to produce symptoms than on an empty stomach; that it is better borne by outdoor and physical, rather than indoor and mental workers, as stated by Anstie (*Stimulants and Narcotics*), is entirely in accord with my own observations. Hare (p. 18) states that thin persons are more easily affected than stout ones, but my own observations lead me to a contrary opinion.

Although it is axiomatic that with those long habituated to its use, the precipitate breaking off of the habit is attended with considerable difficulty, yet I have never seen bad effects except temperamental outbursts follow, even from the sudden giving up of tobacco, though Anstie states that in the aged habituated to its use, it becomes a necessity. All have observed the frequency with which even habitual smokers, when seriously ill, voluntarily give up the drug, often permanently, and even in apparently crucial instances as typhoid or pneumonia, where circulatory depression would be a very evident and serious matter, I have never seen the slightest bad result follow from abrupt discontinuation of the weed, at least in so far as the circulatory system is concerned. The nervous and mental strain, however, may be considerable and these are naturally most evident in those longest habituated. In grievous illness, however, patients very commonly evince a sudden and acute dislike for tobacco—never in my experience to their disadvantage. A well known physician, a heavy smoker, tells me that even a decrease in the amount of his tobacco brings about distressing dyspepsia and severe constipation, relieved only by a resumption of the customary tobacco.

This is probably due to a decrease in gastric and intestinal motility.

Much has been written as to the variation of effect according to the method of ingestion, particularly by the older writers. One cannot but be impressed with the possibility that a strong personal element of prejudice may be expressed in such opinions. Hirschfelder's statement that the most serious effects are produced in young cigarette smokers who inhale the smoke, may, however, be explained by the fact that young tissue tends to increase drug effect or susceptibility and also that the absorption by direct inhalation is most rapid. Whether chewing, pipe, cigar or cigarette smoking is the more harmful appears to be of little real practical importance in discussion, because the type of the tobacco, undoubtedly an extremely variable factor, also determines much in this direction. Again also the manner of taking to which the patient is habituated, appears to be a very definite controlling element. Even heavy and immune smokers may succumb to a chew, and snuffing to those unaccustomed to the drug in this form seems to be particularly toxic. Selective tolerance may even extend to so delicate a point as to render a smoker immune to his customary brand of cigar or cigarette, and yet perhaps be profoundly affected by a strange make, though of possibly milder grade. This factor probably contributes very largely to the highly refined taste for certain brands of tobacco, which is so universal among real tobacco epicures. Krehl (*Diseases of the Heart, Nothnagel's Encyclopedia of Practical Medicine*) states, for example, that in Germany heart symptoms due to tobacco poisoning occur only among cigar smokers.

Another factor concerned in the lowering of the resistance which all habitual smokers develop to a greater or lesser degree, is nervous tension, which always greatly increases the liability toward heart or gastrointestinal disturbances, and as mentioned in illness or depression of any kind, Nature often automatically brings about a distaste for the weed. Increase in the amount of tobacco used or in the time of its employment often seems to invite the appearance of symptoms of cardiac disturbance.

By no means infrequently, persons long habituated to the use of tobacco suddenly and without apparent cause develop a sensitization to its effects so that very distressing heart symptoms appear, even from very slight doses of tobacco.

CASE II. W. L. S., a powerful and apparently healthy man, aged thirty-five years, was a continuous smoker of heavy cigars. He complained for some weeks of a sense of weight and discomfort in the region of the heart, equally during rest and exercise. Soon it was accompanied by marked irregularities in pulse tension and rhythm. He was suddenly seized one evening with a typical attack of angina pectoris which was relieved by the usual treatment. He gave up tobacco for several days, but as soon as it was resumed the angina returned with great intensity and frequency. Tobacco was again discontinued, but the patient had now become so sensitized to the drug that he was unable to enter a room where others were smoking without being seized by angina. The sensitization persisted in very acute form for nearly two years, and even three years after the use of tobacco had been entirely discontinued, the smoking of a single cigar sufficed to bring on a mild attack of angina. So far as can be determined, the heart is otherwise entirely normal.

One question of considerable importance, bearing on the effects of tobacco on the heart, is that as to

the endurance of the tobacco heart when under the stress of physical exercise or of mental strain. The answer to this question seems rather obvious, since physical trainers as a class condemn the use of tobacco, at least during training. The "short wind" of the tobacco using athlete appears to be in most instances an evidence of defective heart action, though in many cases it may not be manifested by the automatic palpitation, intermission, and anginal attacks which we find typify the fully developed instance of tobacco heart. Not only is this circulatory inadequacy evidenced under physical stress, but under mental strain as well. The physician or lawyer, the violinist and the rifleman have learned to know that before the hour of stress tobacco is a detriment to a high type performance. A frequent exception to these statements is seen in instances where tobacco acts as a sedative, and in these cases smoking quiets the nerves and unquestionably steadies muscle control.

SYMPTOMS.

It would seem that a definite differentiation might be made between the symptoms manifested in acute tobacco poisoning of the heart in hitherto nonusers and those which appear in those who have by long usage accustomed their hearts to its effects. When one comes to a close analysis of the cardiac symptoms, however, one cannot but be impressed that the statement of Hare is quite correct, namely that the differences are chiefly those of degree.

Cardiac disturbances are the very earliest symptoms which appear either in pure nicotine or in tobacco poisoning. Beginning with the older observers, Venner, Brailsford, Rush, Alcott, even the theologians who have written on the subject, recognize an increased pulse rate as the initial circulatory sign. An increase in blood pressure of from three to as much as fifteen mm. Hg. takes place, to be succeeded soon by a definite tachycardia with marked irregularity in tension as well as in rhythm. During this period many of the cardiac pulsations do not reach the radials, and apical and radial tracings taken in conjunction show a succession of cardiac pulsations imperceptible at the wrist, which finally culminate with a strong contracture which appears in the radials as a sharp, high elevation with a quick fall in pulse pressure, very much as in aortic incompetency. Intermittence is frequent, becoming more and more marked as the symptoms increase in severity.

Many cases never pass beyond this point, and if the taking of the drug ceases, the heart action may more or less quickly return to natural, even in the case of long standing smokers. Where nausea becomes marked and syncope approaches, usually preceding vomiting, the pulse rate falls, even to subnormal, the blood pressure drops to or below the natural, the hands and feet become cold and covered with a copious cold sweat, sometimes slightly cyanosed, and the appearance of the patient is indicative of a severe nausea. This is the period of syncope. Alarming, sudden syncope may, however, develop without a previous tachycardia or palpitation. It commonly terminates with a violent attack of nausea or vomiting, sometimes with diarrhea. As a rule, when vomiting occurs, sudden improvement is manifest; where the nausea does not thus cul-

minate, the irregular and more or less rapid action of the heart may persist for hours or even days, or disappearing, may be excited to reappear by exercise or by emotional or mental stress.

Pain is almost invariably present, even in mild cases; not infrequently it is the only symptom shown for some time. It may be very slight in degree, so slight it is frequently complained of as a sense of discomfort or unrest in the cardiac region—sometimes described as a sense of weight in the location of the heart. It may appear as a dull pressing, persistent ache, not varying greatly in degree. It is frequently diagnosticated as an indigestion. This pain, together with the palpitation and tachycardia, may not infrequently be temporarily relieved by mild exercise, though, of course, in other instances exercise accentuates all the symptoms. Occasionally great relief is experienced when gas is expelled from the mouth or bowel.

Anginal attacks are very frequent; in my observation they occur with greater frequency in old habits, long accustomed to the drug rather than in acute cases, although I have known acute angina to develop with the initial dose of tobacco. In my opinion, this angina is indistinguishable clinically from that due to other causes. The same aspect of grave illness is present, the tumultuous and very irregular heart action or the very slow but irregular pulsations. The face becomes ashen, occasionally slightly cyanosed, the countenance anxious, the eyes protrude, and as a rule the patient bends forward and toward the left, splinting the heart region with the hand or pillow. The pain may be agonizing and is not infrequently reflected in directions other than the classical, down the arm and through the breast. In not infrequent cases it is referred into the abdomen across the thorax or down the right arm. It is relieved by the active vasodilators, but usually most promptly by morphine, perhaps as Quimby suggests because this acts more profoundly on the nervous system. I have never seen death occur during one of these attacks, although I believe that there is no reason why it might not, especially in patients who have already organic coronary disease. Alexander Lambert (*private communication*) reports three such instances, all in old persons. Powell (*Albutt's System of Medicine*, VI, p. 31) cites Huchard as reporting one case in which death took place.

When angina has once developed, if the drug is persisted in, it is almost certain to reappear, and in most cases which I have observed, with increasing frequency and intensity. Dilatation of the heart does not seem to impend, but it appears to be rather a pneumogastric phenomenon associated in the anginal cases with a probable coronary claudication. Hare is of the opinion apparently that when death occurs it is the result of asphyxia.

TREATMENT.

The most important treatment of all stages and forms of tobacco heart is the complete and immediate withdrawal of tobacco. In many cases a reduction in the amount taken may suffice to relieve the symptoms, or the taking of the drug only when the stomach contains food; again relief may be experienced from the substitution of a milder form of tobacco, especially in the earlier manifestations.

Where syncope or angina has appeared, however, no half way method of treatment should be considered, but the drug should be immediately and entirely withheld. I have never seen a case in which complete sudden withdrawal produced any bad symptoms other than mental or temperamental outbursts. It is my opinion that complete withdrawal is infinitely preferable to attempts to taper off gradually.

Not infrequently after a relatively short period the use of the tobacco may be resumed, but I have observed three instances in which the slightest subsequent dose of tobacco, in one instance even after three years, produced very marked angina.

Most instances require very little treatment aside from the giving up of the tobacco; there are occasional cases which improve more rapidly when digitalis or strophanthus is given. The intense nervousness which follows the withdrawal of the customary stimulant or narcotic, as you please, may be relieved by the use of bromides. Emergency attacks of angina are, of course, to be managed as the same symptom complex would be when originating otherwise, but with an infinitely better prognosis. Black coffee, camphor, aromatic spirits of ammonia, digipuratum, the cold water spray, massage, and other similar methods are to be used as indicated, but the whole keynote of treatment is the withdrawal of the tobacco, and if it is ever resumed, it may be taken only very moderately and at appropriate times.

An important question, one which is very frequently asked, is as to cases of cardiac disorder in which one may safely use tobacco. Many clinicians theoretically avoid this dilemma by the sweeping statement that no cardiac patient should use tobacco. One well known, but not over studious author, states this as his apparently invariable advice, and all too frequently we find such an opinion copied from author to author. It is very questionable if any successful clinician really follows out so illogical and didactic a statement. Tobacco contributes in no small way to the joy of living. The intemperate use of it, like the intemperate use of meat, of sugar, of water, or overgratification of any normal and instinctive inclination and function, may bring about disease. Pleasure and happiness are too important factors in life to justify the universal elimination of any element of this character, without adequate, individual, and really scientific judgment. Therefore I feel that we are not justified in telling a cardiac patient that he cannot use tobacco in temperance from mere generalities and not unless we are prepared to give good, scientific, and personal reasons in each case.

For example, in Forchheimer's *Therapeutics of Internal Diseases*, III, p. 758, the statement is made that in arteriosclerosis "it seems wisest to forbid its (tobacco's) use entirely in view of the digestive disturbances which occur with it." The real meaning of such a general statement is that no man over forty years of age should be allowed to smoke, for after this period more or less arterial disease is as natural as gray hair or facial wrinkles. We may well ask if tobacco, temperately used, always causes digestive disturbances? May not any food intemperately employed cause digestive disturbances?

Does this appear as a logical conclusion when we have as yet practically no evidence whatever that tobacco causes arteriosclerosis?

It has been the custom to advise against the use of tobacco in all instances of muscle disease, irrespective apparently of whether or not symptoms occur with its use and disappear when the weed is discontinued. If experimentation, pharmacology, and clinical observation have taught us one single fact about the action of tobacco, it is that its effects, while occasionally very dangerous, are evanescent.

I advise against the use of tobacco in cases of angina pectoris, for the reason that the action of the drug adds to the existence of diseased coronary arteries, its pharmacological effect, claudication. I believe that clinical experience bears us out in this restriction. Furthermore, I am inclined to the opinion that as a result of this claudication, progression of a localized arteriosclerosis may be favored.

In any instance where the effects of tobacco on the pneumogastric produce symptoms of cardiac embarrassment, entirely irrespective of the heart lesion, whether it be pericardial, myocardial, or endocardial, the drug should be given up, or used only in such doses that no indications of disturbance occur.

In the use of any substance which invites so definite and yet a so variable individual reaction, I believe that each case should be considered a problem by itself. Where a patient desires to use tobacco moderately, we are not justified in denying him a very real and definite pleasure and consolation until we have tried it out on him. If disagreeable or bad symptoms are produced, and every reasonably intelligent observer, medical or lay, should be able to determine this, it is a very simple matter to cut out tobacco. If, on the other hand, no symptoms are produced, since we have the prepondering weight of evidence on the side that tobacco does not produce anatomical changes in the tissues, I do not believe that we are justified in denying our patient what we cannot intelligently explain. Such a method is easy, but it is neither a decent nor a scientific stand for a modern physician to take.

My advice then would be that, except in angina pectoris, whether tobacco may or may not be used depends on the effects which its use, not abuse, produces on the individual.

CONCLUSIONS.

Tobacco produces symptoms referable to the heart, of a very definite and characteristic type. These are first manifested by an increase in rate, with a rise of blood pressure, later by a slowing with a fall in pressure. These symptoms are apparently due to vagus effects and quickly disappear when the drug action passes. These symptoms all diminish in degree with habituation to the drug, though they may be probably aroused in almost any instance by increasing the dose and in many cases by changing the form of administration.

Prolonged excessive administration of tobacco induces arrhythmia and intermission. These symptoms are more or less persistently accompanied by a sense of weight or of pain of a dull persistent character in the heart region. Pain may be entirely independent of alterations in rhythm, though most

likely to occur with a slowing of the usual rate. So far as can be surmised from experimental evidence and from clinical observation, these symptoms are not due to vagus disturbance, but to claudication of the coronary vessels. They are more likely to appear in chronic smokers than in beginners, and in long standing rather than in recent tobacco habituation.

Tobacco angina pectoris is in all symptomatic respects similar to the true angina pectoris caused by coronary disease. It occurs with considerable frequency in chronic tobacco poisoning. It is unusual if not unknown in acute tobacco poisoning, and long habituation to the drug predisposes to this symptom. It is relieved by the usual vasodilators and also by morphine. It is commonly succeeded or preceded by a sense of pain in the precordium. The angina of tobacco poisoning is entirely relieved and commonly does not recur if tobacco is given up. In many instances one attack appears to sensitize to others. This sensitization seems to disappear very slowly. So far as can be determined, this symptom is due to a coronary claudication and it is entirely or almost free from vagus effect.

There is no clinical nor experimental evidence that disease of the heart muscle is caused by tobacco, save for possible changes in the papillary muscles, probably explainable on a mechanical basis. The fact that all symptoms disappear when tobacco is discontinued, seems to confirm this statement.

There is neither clinical nor anatomical evidence sufficient to indicate that true coronary sclerosis may be caused by tobacco, though it is highly probable that when this condition exists, the symptoms are accentuated by it.

Tobacco angina is promptly relieved by discontinuation of tobacco; no such result can be obtained in true angina pectoris.

It is probably unwise to permit the use of tobacco in circulatory diseases when symptoms of cardiac embarrassment occur.

The persistent use of tobacco immunizes against vagus effects and sensitizes to coronary claudication.

Death may result from acute tobacco poisoning, in which case its mechanism is chiefly from vagus effects.

Death may result from tobacco angina, but is probably very rare and most likely occurs only when anatomically diseased coronary vessels preexist.

The essential treatment of tobacco poisoning is suspension of the use of the weed.

44 WEST NINTH STREET.

Local Use of Tincture of Ferric Chloride in Dermatological and Other Conditions.—H. H. Seelye, in the *Urologic and Cutaneous Review* for May, 1914, states that he has frequently had success with tincture of ferric chloride as an astringent where other generally employed measures had failed. It constitutes often the only measure needed in cases presenting an itching eruption on a raw and inflamed surface. There is prolonged burning when the tincture is applied directly and in full strength for the first time to an abraded area. To prevent this cocaine should be previously applied and then a watery dilution of the tincture.

THE PSYCHOPATHOLOGY OF NEUROSIS.

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(Concluded from page 770.)

Psychopathic maladies do not depend on the abnormal action of some one organ or function, but on a *general condition common to all bodily and mental functions*, viz., *the fundamental primitive fear instinct which relates to life in general*. The deranged functions, cardiac, respiratory, or sexual, fatigue, conflict, shock, are only the *occasions*. To regard any of these occasions as the source of psychopathic maladies is like regarding the weathercock as the source of the wind. *The fear instinct alone is the source of all psychopathic maladies*. I adduce here a few cases which may be taken as typical:

CASE I. Mrs. M. C., aged thirty-two years, American. Family history good; well developed physically and mentally. A year before the present trouble set in, patient suffered from a severe attack of the gripe. Menstruation, which was before painless and normal in amount, became painful and scanty, accompanied by headaches, indisposition, irritability, crying spells, and backache, which lasted long after the menstrual period was over. There was a slight, somewhat thick, leucorrheal discharge. The family physician ascribed the symptoms to endometritis, mainly cervical, and treated her with absolute rest, fomentations, injections, scarification and dilatation of the cervix, and finally curetted the uterus. As the patient grew worse under the treatment, she was taken to a gynecologist, who, after an examination, declared the whole trouble to be due to retroflexion of the uterus and suggested an operation for reduction. The operation was duly performed, with the result that the nervous symptoms became intensified and the attacks increased in violence and duration. The turn of the nerve specialist came next. Hysteria, neurasthenia, and the more fashionable "psychasthenia" have been diagnosed by various neurologists. A year of psychoanalysis made of the patient a complete wreck, with depression, introspection, and morbid self analysis. Patient was put by neurologist under Weir Mitchell's treatment.

When the patient came under my care, she was in mental agonies, a complete wreck. I gave up the Weir Mitchell rest treatment, sent away the nurse, released the patient from solitary bed confinement, told her to leave the sick room, to give up dieting and medicines, and to return to a normal, active life. The patient began to improve rapidly, and finally all her physical and mental symptoms disappeared; she continues for over six years in excellent condition of health.

A study of the case traced the fear instinct to experiences of early childhood, fears accentuated and developed into morbid states by the deleterious tendencies of the treatment, giving rise to a *somato-psychosis*.

CASE II. A lady, aged fifty-nine years, suffered from kynophobia. When about the age of twenty-nine years she was bitten by a dog; since then she was afraid of hydrophobia. She kept on reading in the papers about cases of hydrophobia until the fear became developed to an extraordinary degree and became fixed and uncontrollable. According to the principles of evolution of psychopathic states, the fear kept on extending. The fear psychosis included all objects that might possibly carry the germ of hydrophobia. The neurosis became a mysophobia.

As in all other cases of psychopathic states the psychosis was traced to the fear instinct the germ of which was laid in the patient's early history. The patient was a very timid child and was afraid of strange animals. In the village

where she lived there were a few cases of hydrophobia which impressed her when a child. This germ was in later life developed by thirty years' cultivation.

Psychopathic symptom complexes I observed in children whose early training was favorable to the awakening and development of the fear instinct. In children affected with fear of animals I traced the fear psychosis to the parents who were afraid of animals, on account of actual traumas in their life history, the child being influenced by imitation, by suggestion, often subconscious, by the behavior of the parents in the presence of animals. Such children are predisposed to recurrent psychopathic states.

In all such cases the etiology is easy to find, if the patient is carefully examined. In many cases the fear instinct with its symptom complex is associated with external objects, giving rise to the so called phobias. Instead, however, of being associated with external objects, the fear instinct is frequently associated with somatic functions (pathophobia) or with mental activities (phrenophobia).

CASE III. Man, aged forty-seven years; actor; family neurotic. Patient suffered from anorexia, indigestion, choking, vomiting, gagging, eructation, gastralgia, and occasional pains in the limbs. He led a rather gay and irregular life up to the age of thirty-two years, when he had syphilis, for which he was under treatment for two years. This scared him because he had the opportunity to see the consequences of syphilis in many of his friends. He had been under continual fear of the possibility of development of parasyphilitic diseases. Seven years ago, at the age of forty years, he had to watch at the bedside of an intimate friend, who had been suffering from severe gastric crises of *tabes dorsalis*. After one specially exhausting night of vigil, worry, and fear, he went to bed for a short nap and woke up with the idea of general paresis and intense fear. Since that time he began to suffer from symptoms of *tabes* with fear of general paresis.

Patient had been a very imaginative child; had his fear instinct cultivated from early childhood by stories of frights, scares, and horrible accidents. When ten years old, grandfather gave him to read *Faust*. Since then patient was troubled with the fear of selling his soul to Satan. Was very religious in his childhood, prayed much, was possessed by the fear of committing sins. "It has now all come back," he complained. A great number of fears could be traced to his early childhood. The somatic symptoms were the manifestations of association of experiences of parasyphilitic diseases, based on the pathological state of the fear instinct, a case of pathophobia, a somatopsychosis.

A few hypnoidal treatments effected a cure, the patient returned to his occupation, free from any distressing symptoms for the last seven years.

CASE IV. H. M., aged twenty-seven years, male, Canadian. Family history good; looked pale, anemic, and frail; very intelligent, sensitive, restless, and had a tendency to worry. About a year ago, he began to feel depressed, to worry about his health; thought he suffered from tuberculosis. His physician assured him that nothing was the matter, but he had uncontrollable fear of consumption and the idea kept on recurring. Up to the age of nineteen years he was perfectly well. He was then laid up with a sore knee for a few weeks. He had time enough to brood over the knee and read some literature on the subject. He thought it was tuberculosis and worried very much. The knee, however, got well, and gradually he forgot all about it, although the idea of tuberculosis often made him feel uncomfortable, and the idea of "water in the knee" used to flash through his mind, to pass away the next moment. A year ago, however, he happened to lose his work, became despondent, began to worry and to brood over his financial troubles, slept restlessly, suffered from anorexia, and began to lose flesh. The idea of the knee and the fear of tuberculosis got possession of him. He could not rid himself of the idea of tuberculosis. If in the clinic, the physician assured him that he was all right,

he felt better for a couple of hours; but often it did not last even as long as that. The least pain, cough, heart beat, a feeling of chill or heat, and the like, brought the idea and fear of tuberculosis back to his mind with renewed energy. He was obsessed by the fear of tuberculosis and felt he was doomed to certain death, a psychosomatic pathophobia.

Hypnosis failed; but hypnoidization did good service. The patient's mental condition began to improve rapidly. He was no longer troubled with depression, insomnia, and fears; began to gain in weight, in appetite, improved, felt energy flowing in, began to look for work in real earnest, finally found it, and kept at it.

CASE V. Man, aged forty-three years, suffered from palpitation of the heart, fainted easily, especially on physical examination by physician, or at the beginning of medical treatment. He suffered from indigestion for which he had been under treatment for a number of years by physicians who gave him medicine for his bowels and also from time to time kept on washing his stomach. He had a great fear of becoming a victim of cardiac troubles, especially of some unknown, terrible, valvular affection. When under my care he kept on asking to be taken to heart and stomach specialists, to be examined and have some radical operation performed. Frequently under the influence of the fear states and obsession of heart and stomach trouble, especially the heart, he would collapse suddenly, be unable to walk, and be afraid that he suffered from some paralysis.

On examination, the patient revealed a history full of various traumas which, from his very childhood until he came under my care, helped to bring about his psychopathic condition, and developed the fear instinct to an extraordinary degree.

The physicians had the lion's share in this special case by their rearing of the fear instinct, and by their favoring the patient's phobias by their examinations, by their prescriptions, and by the diet and treatment. The patient was in such a panic that he kept on taking his pulse at the least occasion, was feeling his heart, stomach, and intestines at every opportunity. The hypertrophied growth of the fear instinct had invaded and dominated the patient's whole personality, developed a typical psychosomatic pathophobia with its recurrent states.

In the *Trudi* for 1913 of the Imperial University of Moscow, Russia, Doctor Ribakov makes an extensive study of a series of cases of psychopathic asthma and arrives at a conclusion similar to my own, although he is no doubt unaware of my work and publications on the same subject. He comes to the same conclusion with me that the etiology of neurosis is to be found in fear, which alone forms the basis of psychopathic neurosis. All other factors, social, professional, sexual, religious, are only occasions of the disease. It is fear and fear alone that forms the pathology of the psychopathic symptom complex.

A young lady was afflicted with ornithophobia, fear of birds, fear of chickens. The sight of a chicken set her into a panic. The patient is very timid, and this timidity can be traced to her early childhood. When at the age of six years, a playmate threw at her in the dark a live chicken. The child was terribly frightened, screamed, and fainted. The mother used to tell her fairy stories full of adventures, of ghosts, of dragons, and of monsters. This prepared the patient to react so violently to the sudden attack made by the flight, struggling, and feel of the chicken in the dark. Since that time patient has formed an uncontrollable fear of live birds.

A man thirty-eight years old, married, highly sensitive, suffers from migraine, is irritable and restless. When about eight years old he wandered in the woods near his house. An Italian ran after

him, flourishing a big knife. The boy ran away in terror. When he reached home, he dropped from exhaustion and fear. Once or twice, on account of the fear of sharp objects, he actually hurt himself when handling knives. This increased his terror and fixed his fear. The instinct of fear was still further developed and stimulated by a series of events, such as falling into a river, from which he was saved. He does not like to take baths, is afraid to enter water, especially a river, and is in terror of sharp objects, such as knives and razors.

Another patient of mine, a lady of forty-nine years, single, suffered from potamophobia, a fear of going into rivers, or into the ocean. When about seven years old she was thrown into water by one of her elder sisters. She was nearly drowned and was half dead with fear when rescued. Since then she has been in terror of water, or rather of rivers and oceans. Several times she made conscious efforts to get rid of the fear, but the attempts were unsuccessful. In fact, the more she was forced or forced herself consciously to get into water, the greater was the fear. This fear became all the more intensified, when some of her intimate friends were drowned in a boat. This fixed the fear, which became uncontrollable.

A patient of mine, a man of thirty-five years, was afraid of going out in the dark. This was traced to early associations of fears of the dark, to superstitious beliefs in ghosts and spirits cultivated in the patient's early childhood. He was afraid to remain alone in the dark or to go down at night into cellars or other secluded places. This fear was unfortunately still more intensified by an accident. At the age of twenty-seven, one night when returning late from a visit, he was assaulted from behind by footpads. This accident fixed the fear of darkness.

A lady of sixty-seven years, with pronounced arteriosclerosis, had an attack of hemiplegia of the left side. She suffered from motor aphasia, but did not lose consciousness. The paralysis cleared up in a few days, but the sudden attack demoralized her. Since that time she is in terror of another attack. She watches for symptoms, and the least sensation of faintness throws her into a panic. The patient is the wife of a general and was in China during the Boxer riots, in the Spanish American war, and in the Philippine and other military engagements. The fear instinct was cultivated in her by all such conditions. In her early childhood there were fears and frights of child character, enough to arouse the fear instinct, which was gradually developed and cultivated by the circumstances of life and by worries in the course of the various wars in which she participated or of which she was a witness. Finally the fear culminated by the stroke of paralysis.

Similarly, I had patients who suffered from tuberculosis, from asthma, from heart trouble, and from all kinds of intestinal affections which specially abound in psychopathic cases. All such cases can be clearly traced to various somatic symptoms based on the fear instinct. The etiology is fear, the arousal and development of the fear instinct in respect to the special symptom complex.

A patient, aged twenty-five years, suffered from agoraphobia at various intervals. As a child of

nine years, he was attacked by rough boys. He freed himself and ran in great terror. The boys threatened him with another "licking" when he appeared again on the street. He was afraid to go out for several weeks. The parents forced him to go and buy some things. Living in a rough neighborhood on account of his father's reduced circumstances, he has been many times subjected to knocks and blows and assaults by rough boys, until the fear of the open street became fixed into the well known form of agoraphobia.

Another case, that of a lady of thirty-eight years, married, suffers from ailurophobia, or fear of cats. This can be traced to the patient's early childhood. When she was a child, her brothers and sisters went through attacks of diphtheria, which was ascribed to infection caused or transmitted by cats. The patient was specially impressed with the danger from cats. Under such training and suggestion given in early childhood, the patient gradually formed a fear of cats. This fear was still more intensified and became a panic when she was put into a dark room and a cat was let loose on the poor victim by her mischievous companions, who knew of the patient's fear. When the patient had children of her own, she was still more affected by the fear of cats, on account of the subconscious and conscious fear of the possibility of infection transmitted by cats to her children.

Mr. D., a young man of twenty-five years, was born in Poland. As far as can be ascertained the parents, as well as the brothers and sisters, are well. A physical examination of the patient reveals nothing abnormal. There are no sensory, no motor disturbances. He complains of severe headaches, preceded by a feeling of indisposition, depression, vertigo, and distress. During the attack there is hyperesthesia to touch, pressure, temperature, and to visual and auditory stimulations. *The patient shivers and looks pale.* The cold experienced during the attack is so intense that the patient has to wrap himself in many blankets, as if suffering from a malarial paroxysm.

Fears have strong possession of the patient's mind. He is afraid to remain in a closed place in the daytime and especially at night. When he has to remain alone at night, he is in agony of fear, and cannot go to sleep. Every passer by is regarded as a robber or murderer, and he quakes at the least noise. When walking in the house in the dark, he has the feeling as if some one were after him, and occasionally even experiences the hallucination of some one tugging at his coat. He is mortally afraid of the dead and shuns a funeral. The patient has also a fear of dogs, a cynophobia. The fear is irresistible and is as involuntary as a reflex.

An investigation by means of the hypnoidal states, brought out of the patient's subconscious life the following data: When a child of three years, the patient lived with his family in a small village near a large forest infested with wolves. In one of the intermediary states a faint memory, rather to say a vision, struggled up,—a vision of wolves and dogs. Some one cried out: "Run, wolves are coming!" Crazed with fear, he ran into the hut and fell fainting on the floor. It turned out to be dogs instead of a pack of wolves. It is that fright in early

childhood which has persisted in the subconscious mind, and, having become associated with subsequent experiences of attacks of dogs, has found expression in the patient's consciousness as an instinctive fear of dogs.

But why was the patient in such abject terror of dead people? This found its answer in the experiences and training of his early life. When a young child, the patient heard all kinds of ghost stories and tales of wandering lost souls and of spirits of dead people hovering about the churchyard and burial grounds; he heard tales of ghouls and of evil spirits inhabiting deserted places, dwelling in the graves of sinners and the wicked. He listened to stories of haunted houses and of apparitions stalking about in the dark. His social and religious environment has been saturated with the belief in the supernatural, as is usually the case among the superstitious populations of Eastern Europe. We cannot wonder, then, that an impressionable child brought up under such conditions should stand in mortal fear of the supernatural, especially of the dead.

When the patient was about nine years old, his parents noticed some prominences on his right chest. It was suggested to them that the hand of a dead person possessed the property of blighting life and of arresting all growth, and would therefore prove a "powerful medicine" for undesirable growths. It happened that an old woman in the neighborhood died. The little boy was taken into the room where the dead body was lying, and the cold hand of the corpse was put on the child's naked chest. The little fellow fainted away in great terror. The fear of dead people became subconsciously fixed and manifested itself as an insistent fear of the dead, and, in fact, of anything connected with the dead and the world of spirits.

The patient had hardly recovered from the shock of the "dead hand" when he had to pass through a still more severe experience. A party of drunken soldiers stationed in the little town invaded his house and beat his father unmercifully, almost crippling him; they knocked down his mother, killed a little brother of his, and he himself, in the very depth of a winter night, dressed in a little shirt and coat, made his escape to a deserted barn, where he passed the whole night. He was nearly frozen when found in the morning, crouching in a corner of the barn, shivering with fear and cold.

From that time on the headaches manifested themselves in full severity, with hyperesthesia and deathlike paleness and intense cold of the body. The early cultivation of the fear instinct resulted in a *psychoneurosis* with its recurrent states.

Another patient is a man of thirty years; his family history is good. He is physically well developed, a well known professor of physics in one of the foremost institutions in this country. He suffers from attacks of loss of personality. The attack is of a periodical character, coming on at intervals of two weeks, occasionally disappearing for a few months, then reasserting itself with renewed energy and vigor. During the attack the patient experiences a void, a panic, which is sudden in its onset, like *petit mal*. The trouble was diagnosed as larval or psychic epilepsy; the man was referred to

me by Dr. Morton Prince as an extremely interesting, but puzzling neurological case.

Patient feels that his "self" is gone. He can carry on a conversation or a lecture during the attack, so that no outsider can notice any change in him, but his self is gone, and all that he does and says, even the demonstration of a highly complex problem in integral calculus is gone through in an automatic way. The fury of the attack lasts but a few moments, but to him it appears of long duration. He is "beside himself," as he puts it. He seems to stand beside himself and watch his body, "the other fellow," as he describes it, carry on the conversation or the lecture. "He is knocked out of his body, which carries on all those complicated mental processes." For days after he must keep on thinking of the attack, feels scared and miserable, thinking insistently, in great agony, over his awful attack, a *recurrent psychoneurotic phrenophobia*.

At first the patient could trace this attack only as far back as his seventh year. Later on, earlier experiences of childhood came to light, and then it became clear that the attack developed out of the *primitive instinctive fear of early childhood*, fear of the unfamiliar, fears of the dark, of the unknown, of the mysterious, to which he had been subjected in his tender years. This state was further reinforced by the early death of his parents, it was hammered in and fixed by hard conditions of life, full of apprehension and anxiety. Life became to the child one big mysterious fear of the unknown. The fear instinct formed the pathological focus of the attack. As the patient puts it: "It is the mystical fear of the attacks which overpowers me."

With the disintegration of the focus the symptom complex of the attacks disappeared. The patient is in excellent condition, he is doing brilliant work in physics and chemistry and is professor in one of the largest universities in Canada.¹

I present another case apparently "paranoid," a case interesting from our standpoint. The patient is a man of twenty-seven years; his parents are neurotic, religious revivalists. As far back as the age of eight he suffered from agonizing fears of perdition and scares of tortures in hell, impressed on his sensitive young mind during revivals. He is very religious, obsessed with the fear of having committed an unpardonable sin. He thinks he is damned to suffer tortures in hell for all eternity. He keeps on testing any chance combinations, and if his guesses turn out correct, he is wrought up to a pitch of excitement and panic. For to him it means a communication coming from an unseen world by unknown mysterious powers. With his condition diagnosed as "paranoid dementia præcox," the patient was committed to an insane asylum, from which he was subsequently released.

The attack comes in pulses of brief duration, followed by long periods of brooding, depression, and worry. The primitive fear of pain, of danger and death, and the sense of the mysterious cultivated by his religious training, reached here an extraordinary degree of development. Among the earliest memories that have come up in the hypnoidal state was the memory of a Sunday school teacher, who cultivated in the patient, then but five years of age, those

¹This case will be given in detail in my forthcoming work.

virulent germs which, grown on the soil of the primitive instinctive fear and the highly developed sense of the unknown and the mysterious, have brought forth poisonous fruits which now form the curse of his life. The case is a typical *psycho-neurotic phrenophobia* with its characteristic recurrent states.

"It is difficult," the patient writes, "to place the beginning of my abnormal fear. It certainly originated from doctrines of hell which I heard in early childhood, particularly from a rather ignorant teacher who taught Sunday school. My early religious thought was chiefly concerned with the direful eternity of torture that might be awaiting me if I was not good enough to be saved."

After a couple of years of persistent treatment by means of the hypnoidal state and methods of association and disintegration of the active subconscious systems, the patient recovered. He entered a well known medical school and took the foremost rank among the medical students.²

In the investigation or psychognosis of psychopathic cases I invariably find the psychopathology to be a morbid condition of the fear instinct, rooted in the primordial impulse of self preservation. The psychognosis of this underlying pathological state and disintegration of the latter are of the utmost consequence in the domain of psychopathology and psychotherapeutics.

THE TREATMENT OF ACUTE SURGICAL INFECTIONS.*

With Stock Preparations of Mixed Infection Vaccine.

BY E. R. SECORD, M. D.,
Brantford, Ont.

It is my desire to lay before my readers the results which have been achieved in my work during the past eighteen months by the use of stock preparations of mixed infection vaccine which are at present on the market, in the treatment of severe infections occurring in surgical work. In order to gain a clearer perspective of these results, I have eliminated from this report all cases of a milder character, also all cases in which the source of the infection was at all in doubt. The cases detailed in the following series were all representative of an extremely severe type of surgical infection, and in each one a fatal result would not have surprised me in the least.

CASE I. Miss W., aged fifty-seven years, was treated from June until September of 1913. Early in June she had scratched her thumb with a knitting needle. I did not see her for about a week afterward, when there were all evidences of a diffuse cellulitis in her right hand and forearm. She was treated along general surgical lines for about six weeks, during which time free incisions had been made and pus evacuated on several occasions. On each occasion there would follow considerable local improvement; her temperature would drop and her general condition would appear to clear up, but in four or five days or a week there would be an exacerbation of symptoms, both general and local, and finally another pocket of pus would be discovered somewhere in the forearm.

During the latter part of July she began to appear dan-

gerously ill, chills were frequent, and her condition became alarming. I then gave her two c. c. of mixed infection vaccine, followed the next day by 7.5 c. c., both injections being given subcutaneously. The result was most remarkable. Her temperature dropped to normal, the chills ceased, the swelling of the arm, which had been very great, immediately subsided, and I was almost persuaded that a cure had been effected. In about a week's time she had another chill, her temperature rose to 103° F., her arm became enormously swollen, but without any definite pocket of pus being discovered. I repeated the vaccine injections along the same lines as previously, but giving a further injection of ten c. c. on the third day. The immediate result was once more astonishing. The brawny edema of the arm disappeared, leaving, however, a very tender spot on the dorsal side of the carpal bones. As the swelling subsided, definite grating could be made out on bending the wrist. Feeling that she had, no doubt, an extensive osteomyelitis of the carpus, and hoping that I might be able to do something in a surgical way in the removal of the diseased bone, I had her transferred to the hospital some four or five days after the last ten c. c. injection.

I opened up the arm through a longitudinal incision and found that each of the carpal bones, the lower end of the ulna and radius, and the upper ends of the metacarpal bones were all necrotic. As it was evident that a resection of these diseased bones would leave a useless hand and arm, and as her condition on the operating table was very bad, I removed such of the necrotic pieces of bone as were entirely free and loose in the cavity, stuffed the opening with gauze, and sent her back to bed, hoping that the freer drainage thus secured would so modify the absorption as to enable me to get her in a somewhat better condition to stand an amputation. Apparently the manipulations during this operation and the opening of new lymphatic channels to infection resulted in a contrary effect, as she rapidly became septic again, her temperature rose to 104° F., accompanied by violent chills, enormous swelling of the arm, almost to the shoulder, with pulse of a very poor volume and tension. Her pulse rate was about 130, and she became dull mentally, indeed almost comatose. Under these circumstances I felt that her only salvation depended on an immediate amputation of the whole diseased area, but as the swelling extended almost to the shoulder joint this was a practical impossibility. I consequently gave her five c. c. of mixed infection vaccine intravenously, and the same morning did a rapid amputation of the arm at about the middle third of the humerus. The cut bone was healthy at this point, but the skin flaps were swollen, discolored, and involved in a general inflammation, and no doubt their lymphatic channels were filled with virulent bacteria. I brought the muscles together with a catgut suture, put rubber drainage tubes down to the stump of the bone, and tacked with a few silkworm gut stitches. The whole operation occupied about twelve minutes, with the patient's pulse running about 140 to 150 all the time.

She was removed to her bed, saline solution was administered per rectum and under her breast, and although she was suffering very considerably from shock, we were able to keep her alive during the day. She made a perfect and rapid convalescence, the swelling and the skin flaps disappearing immediately, and healing taking place absolutely per primam except where the drainage tubes were inserted. Through these openings there was some bloodstained serous discharge for a few days but these rapidly granulated in, and she remained in good health.

CASE II. Master S., aged five years, patient of Doctor Wiley's, was operated on, September 6, 1913, for acute appendicitis. The appendix was gangrenous with some foul smelling pus in the pelvis. The little chap did very well for a week or ten days and then developed a condition of general septicemia; the temperature rising to 104° F. in the mornings and falling to about 100° F. in the afternoons. The abdomen was slightly distended, but there was no evidence of any localized collection of pus. The discharge from the drainage wound had about ceased, but the condition tended to grow worse for three or four days, and, though constantly on the alert, Doctor Wiley and I were unable to detect any localized collection of pus in the abdomen. We accordingly gave him graded doses of mixed infection vaccine, starting with 0.5 c. c. subcutaneously and increasing by 0.5 c. c. daily until five doses had

²A full account of this case also will appear in my forthcoming work.

*Read before the Brant County Medical Society, December, 1914.

been given, when we allowed a day to intervene. On this day his temperature remained normal for the twenty-four hours and continued so thereafter, his convalescence being rapid and most satisfactory.

CASE III. Mrs. W., aged thirty years, primipara, was confined early in January, 1914. She had a transverse position with shoulder presentation and prolapse of the cord, and was delivered with extreme difficulty after version. The baby was born dead and the placenta had to be removed manually. At the end of a week she developed an acute puerperal septicemia with chills, temperature 103° to 104° F., and pulse 130 to 140. The uterus was curetted without finding any debris, and intrauterine irrigations were practically without effect on the temperature. Her condition being most alarming, I gave her two c. c. of mixed infection vaccine subcutaneously, followed the next day by one c. c. intravenously, increased by 0.5 c. c. daily until she had received six doses. On the following day her temperature was normal and her condition improved. Some three days subsequently there was an elevation to 100° F., in the afternoon, so that I gave her a three c. c. dose intravenously the next morning; whereupon her convalescence continued in an uninterrupted manner and she remained in good health.

CASE IV. Miss S., aged twenty-five years, nurse in training, pricked her forefinger one afternoon during the performance of her duties, but did not pay any attention to it at the time. That evening she was chilly and had considerable pain in the finger and forearm. The next morning when I saw her, her forefinger was enormously swollen, very livid, with streaks of lymphangitis extending up above the elbow.

An incision was made along the palmar aspect of the forefinger from the tip to the metacarpophalangeal joint. There was no pus nor was there any bleeding through the incised tissues. Her temperature was 102.5° F., and she presented every evidence of acute streptococcus infection. Two c. c. of mixed infection vaccine were given subcutaneously and the arm placed in a continuous hot bath. One c. c. of mixed infection vaccine was given the next day intravenously. In all, four intravenous doses were given, increasing by 0.5 c. c. each time. Her temperature dropped to normal, the lymphangitis disappeared, and the forefinger, which was in a condition of moist gangrene, was amputated at the metacarpophalangeal joint and healed up in an entirely satisfactory manner.

CASE V. Man, aged thirty years, a patient of Doctor Bell's, had been operated on for an acute mastoid disease, but developed thrombosis of the lateral sinus, accompanied by a severe septicemic condition. Doctor Bell operated again, opened the lateral sinus, and removed disorganized blood clot. I had the pleasure of assisting at this operation and at his suggestion, removed the internal jugular vein from its junction with the subclavian to the base of the skull. Mixed infection vaccine was administered as in previous cases and the patient died on the third day, being apparently unable to overcome the severity of the infection.

CASE VI. Mr. John N., aged thirty-five years, during August, 1914, was confined in the hospital with an attack of typhoid fever. About the end of the third week he had a chill, pain in his right chest, somewhat above the liver area, with considerable blood stained sputum. I could never make out a definite pneumonic consolidation, but was rather of the opinion that he was suffering from a pulmonary infarct. He was seen at this time by Doctor Rathbun, of New York, who agreed with this diagnosis. A few days later some dullness was discovered over the lower right chest and the breath sounds were much diminished. Feeling that he might be developing an empyema, I introduced an aspirating needle, but withdrew only a small amount of clear serum. His abdominal symptoms had subsided considerably, his cough was increasing, and the blood stained expectoration was very marked. Feeling that my original idea of pulmonary infarct had been correct and that there was considerable possibility of the condition going on to an abscess or gangrene of the lung, I gave him mixed infection vaccine along the lines already laid down, and had the satisfaction of seeing an immediate improvement in both his general symptoms and temperature. A rapid and satisfactory convalescence ensued.

CASE VII. Mr. A., aged sixty-eight years, had the misfortune to have his hand crushed by machinery in one of the local factories. An acute infection followed with

rapidly spreading swelling of the arm and forearm. Free incisions were made in the hand and mixed infection vaccine administered in the usual way. The induration of the hand and forearm rapidly subsided and a speedy convalescence was established.

CASE VIII. Mr. W. R., aged sixty years, had suffered for some months from a chronic cystitis and prostatitis. General treatment had been used without avail, also daily irrigations of the bladder. He developed a double orchitis accompanied by chills and high fever, and finally became delirious at night with a comatose condition in the daytime. Mixed infection vaccine was administered in the usual way, although I fully expected the man to die within two or three days. He immediately started to improve, the inflammatory symptoms all subsided, he returned to work, and required no further treatment.

CASE IX. Mr. F. H., aged thirty-eight years, patient of Doctor Bier's, was operated on, October 5th, for acute gangrenous appendicitis with general peritonitis and gangrene of a large area of the cecum. The first dose of mixed infection vaccine was given before he came out of the ether, and intravenous doses were given for the next four days. Other than a troublesome hiccup, his convalescence was free from difficulties and he made a first class recovery.

TECHNIC.

In all of these cases, except the first two, the following technic has been used: The first dose of mixed infection vaccine in adults has been one of two c. c. and has invariably been given by deep intramuscular injection, either in the gluteal region or in the muscles of the loin. This has been followed in twenty-four hours by an intravenous injection of 0.5 c. c. The second and third injections have only been given in twenty-four hour periods intravenously, increasing the dose by 0.5 c. c. each time. If the improvement was not as rapid as desired, the fourth intravenous dose was given on the succeeding day, but where evident improvement was noticeable, this has occasionally been left till the fifth or sixth day. All the intravenous injections have been given into whichever vein at the bend of the elbow was most prominent. The required amount of mixed infection vaccine is drawn into an all glass hypodermic syringe with a long needle and diluted with three or four times its volume of warm normal saline solution. A bandage is placed round the upper arm, drawn tight, and the skin at the bend of the elbow washed with alcohol. The patient is made to extend the arm fully and to grip the hand on some convenient object, and the needle is inserted into the most convenient vein, so that the point is toward the body. When the point of the needle is in the lumen of the vein, a streak of blood will appear, mixing with the injection fluid in the barrel of the syringe. It is not necessary nor advisable to withdraw the piston in order to make the blood appear. When the blood has shown up, indicating that there is a free channel between the syringe contents and the interior of the vein, the bandage at the upper arm is removed and the syringe contents are slowly injected into the vein. This should be done very slowly with a rotating motion of the piston, and should occupy not less than two minutes. When the contents are all injected, the syringe is withdrawn and the skin again washed off with alcohol. It is not necessary to close the puncture or to put any dressing on it.

Reaction. When the foregoing technic is followed, there is usually very little, if any reaction from the first or subcutaneous dose. After the in-

travenous dose, in about twenty minutes or an hour, a distinct chill is usually observed, the temperature is elevated one or two degrees above what it has been, and there may be some nausea and frequently headache. These unpleasant symptoms usually pass off completely in an hour or so, and the next morning the temperature is generally decidedly lower than it was before the injection was given. In general the same reaction follows the subsequent intravenous doses, but does not seem to be any more marked as the size of the dose is increased. I have never seen any dangerous or alarming features in any of these cases, and I am inclined to think that what might be called a good reaction is rather to be construed as a favorable sign than otherwise; indeed, if no reaction at all was observed, I should doubt the efficacy of the treatment and think that the type of infection was one of a different character from that represented in the bacterial content of the particular vaccine being used. I am of the opinion that the intravenous injection should never be used except after a preliminary subcutaneous injection, that the vaccine should always be diluted with saline, and that the fluid should always be injected *very slowly*.

CONCLUSIONS.

1. I am of the opinion that in the stock preparations of mixed infection vaccine we have powerful remedies for stimulating the power of resistance of patients who are seriously ill from that group of conditions which, for lack of a better name, we may call the surgical infections.

2. I am of the opinion that it will permit patients to live and go on to recovery who would otherwise be overwhelmed by the severity of the infection.

3. I believe that the use of the vaccine is without harmful results.

4. It is obvious that the use of the remedy should not be delayed until the patient is moribund, but if given while the patient is still capable of responding to this stimulus, I am confident that it will be of inestimable value.

112 MARKET STREET.

SUPERDIAGNOSIS.

BY A. G. HUEGLI, M. D.,
Detroit.

Dujardin-Beaumetz, the French clinician, aroused the greatest indignation among his learned confrères, because, in opening his courses, he said to his students: "Gentlemen, the science of medicine, which I am commissioned to teach you, does not exist." Now, obviously he wanted to make them understand at the very beginning of their medical careers that they did not deal with a subject which lent itself to such rigorous rules and regulations as the exact sciences like geometry and astronomy, lest the practice of medicine as an art suffer through too close an observance of scientific precepts and dogmas.

This is a scientific age, however, and the spirit of inquiry dominates all regions of thought. Every premise and every conclusion is subjected to the keenest analysis, and woe to him who makes a statement which is not amenable to orthodox proof! In

medicine this *Zeitgeist* has manifested itself by the development of the pathological laboratory, with its manifold aids to ascertaining the causes of disease. It would be folly to question their value for the maintenance of health and the prolongation of life. Everyone who is familiar with the tremendous strides of medicine, even within the last ten years, realizes the debt of gratitude which we owe to our men of the microscope and test tube. On the other hand, is it not also a fact that we are in danger of becoming saddled with the syllogistic ideas of science to the detriment of the healing art? Is it not possible that we are learning to lean on the laboratory so implicitly for diagnosis, that medical skill is rusting from resting and clinical judgment is becoming atrophied by disuse? May not the patient himself be a sufferer by too much of the scientific caution which our laboratory brethren insist upon? Is a Wassermann really necessary in every case before we can be sure of the presence of lues? May we not place some faith in the clinical signs which mark diseases, and treat the patient accordingly, without waiting for the absolute proofs which the laboratory can furnish eventually? We must remember that it is very difficult for human beings of finite minds ever to obtain absolute proof. A man walking along the street is struck on the head by a brick dropping from a roof, and falls dead; assuredly, no jury of reasonable men will have any difficulty in deciding what caused his death. But even here, have we really absolute proof that he was killed by the falling brick? Is there not a possibility that he died of apoplexy a fraction of a second before the brick struck him? And so, when our laboratory workers insist upon absolute proofs, upon an absolutely positive diagnosis before we undertake treatment, are they not disregarding human limitations?

Take, for instance, a condition frequently seen by all in the winter months. You are called within a few hours after an individual has gone to bed with a severe chill. There is a rapid, bounding pulse, short, quick respiration, high temperature, possibly blood streaked expectoration—perhaps even faint crepitant rales in the chest, though of this you are not sure. Now this may or may not be a beginning pneumonia. Supposing that you promptly inaugurate the specific treatment, which is so valuable at this stage of the disease—the immediate injection of a bacterin containing killed pneumococci and streptococci. Obviously, if the man gets well within four or five days, as he most likely will, you will not have the certainty that you were really dealing with pneumonia, and you will never be able to furnish absolute proof that you saved him a six weeks' siege of this dread malady with a doubtful ending. You yourself can only gain the quiet conviction that you have done so after you have had a sufficiently large number of similar experiences, but you will perhaps never be able to single out any one case and say that here the vaccine aborted the pneumonia. If you present a large series of such cases before your medical society, you will be sure to encounter the criticism of astute fellow members who will point out that every one of these patients might have got well without any treatment. This criticism it is difficult to meet, as I know by personal experience.

All I can say is that I have sufficient confidence in my clinical judgment to feel certain that the onsets were characteristic of pneumonia, and that I could not possibly have been mistaken in a large proportion of the cases. But especially the ultrascientific men will say that it was my business to wait until I could be absolutely sure of the existence of a pneumonia, and if then I had given vaccine treatment with satisfactory results, I might have some evidence of its value. Unfortunately what I might have gained by the delay in diagnostic certainty, I should have sacrificed in therapeutic efficacy, for meanwhile the invading organisms would have had time to throw up entrenchments in the shape of consolidation of the lungs, and the antibodies which my vaccine injections produced would have found an enemy fortified at the strategic points, instead of one which had not yet obtained lodgement.

Here superdiagnosis, as I have termed it, is responsible for a great deal of mischief. In typhoid fever as well, the overanxiety to be absolutely sure of knowing what ails a man has done great harm. Obviously if, as so many antagonists to the vaccine therapy of typhoid fever have done, you wait eight or ten days until you get a Widal reaction, you have lost the most favorable opportunity for specific treatment. This is unfair to the patients who have been deprived of a most valuable aid in the combat with the infection, and the men who have been disappointed by vaccine therapy under these circumstances have only themselves to blame. There is very little satisfaction in temporizing until it is positive that a man has typhoid fever in order to make sure that he gets the approved treatment, and thereby cause him to linger near death for a month or two. If the wishes of the patient himself were consulted, he certainly would rather be treated on the supposition that he has typhoid, and later on never know whether he really had the disease, than be scientifically neglected until his ailment is duly diagnosed, when it is too late to save his life, or at best avoid a long sickness.

When I am called to a puerpera who shows a high fever, I do not hesitate to inoculate her immediately with a vaccine containing the various possibly offending germs; experience has taught me that I can depend upon a rapid recovery, and I never regret not having found out whether her condition was due to the streptococcus or the colon bacillus, or, in fact, not having had it scientifically demonstrated by culture tubes that she really had a puerperal sepsis before I treated her. It suffices for me that such scientific curiosity might have involved the signing of a death certificate.

When there is an epidemic of whooping cough, I make it a point to give prophylactic injections of Bordet vaccine to the children under my care, and I am satisfied with the fact that they remain free from the disease, even though I have no way of telling whether they would not have remained well anyhow.

I have directed this communication particularly against the present day exaggerated emphasis on diagnosis, because I am convinced that, especially in the specific therapy of the common infectious diseases, it has often been a great obstacle. The rule should be to inaugurate specific treatment on a

clinical diagnosis in these cases, just as diphtheria antitoxin is given when the throat leads to suspicion, and not to wait before going ahead for confirmation from the ponderous machinery of the laboratory. Even if the recourse to specific therapy should occasionally be unnecessary, at all events it is always a harmless measure and one never regrets having employed it. I have never seen or heard of a case in which a dose of bacterial vaccine did any injury.

So the object of this paper is to encourage the use of bacterial vaccines as primary and not as final resorts in infectious diseases. Lay aside the theoretical preconception that bacterial examination and autogenous vaccines are absolutely essential; send the patient's specimen to the pathologist if you want to, but meanwhile give him the benefit of an injection of a vaccine prepared by a reliable manufacturing laboratory. You may not be sure afterward, in a certain percentage of cases, that your patient really had the disease which you suspected, but at all events nothing will ever take from you the certainty that the difference in the course of most of the cases is attributable to the prompt administration of specific treatment.

770 JOSEPH CAMPAU AVENUE.

THE COMPLEMENT FIXATION FOR SYPHILIS WITH CHOLESTERIN ANTIGENS.

A Statistical Review of Results.

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As a diagnostic guide and therapeutic index, the Wassermann reaction is now so well understood that a discussion regarding any phase of it requires no detailed prefatory description of its application nor of the general technic. Again, the careful work which has been done since the introduction of the complement fixation as a feature in the diagnosis of syphilis, has resulted in such refinement of technic that one could hope to add but little that is new. This communication does not contemplate such an object, but represents a study of the results of a sufficiently large number of reactions to warrant conclusions which should be valuable evidence to confirm or contradict some of the opinions that have been expressed regarding cholesterin antigens. So much conflicting evidence has been submitted regarding the reliability of cholesterin reenforced antigens, that at present there is a great diversity of opinion among clinicians, to whom the practical importance is great.

In this laboratory cholesterin antigens have been used since June, 1913, and have been compared in over fifteen hundred personally performed tests with alcoholic extract and acetone insoluble lipid antigens. The Citron method is employed in five c. c. amounts. Several different organ extracts have been reenforced with cholesterin, and some interesting variations have been noted between the different tissue extracts after the cholesterin has been added as well as between the reenforced and non-

reenforced antigens. Extremely uniform results have been obtained with cholesterinized guineapig heart antigens. They were prepared by adding to the minced tissue ten volumes of absolute alcohol and extracting in the incubator at 37.5° C. for several weeks. After filtrations four per cent. Kalbaum's cholesterin¹ was added to the filtrate after first being dissolved in a small quantity of ether. For each antigen prepared in this way fifty to one hundred hearts were used.

The amounts employed in the reaction represent at most one fifth of the quantity which produced an inhibition of hemolysis without serum (anticomplementary dose) and from four to five times the quantity which produced an inhibition of hemolysis with a known positive serum (minimal antigenetic dose). The particular antigen at present employed is anticomplementary at 0.3 c. c. and antigenetic at 0.004 c. c. For the test 0.02 c. c. is employed, allowing a wide factor of safety. In preparing the antigen dilution the saline is added to the antigen first drop by drop until two or three c. c. are added, then rapidly.²

A point noted by the writer in confirmation of other serologists is that some but not all cholesterin antigens become anticomplementary after six to eight weeks, necessitating frequent titrations and a gradual reduction in the amount used. To obviate this, only enough alcoholic extract should be reinforced with cholesterin to last one month. This causes no inconvenience and is a safer procedure. If older antigens are used, frequent titration should be made for the determination of the amount in which they are anticomplementary.

The serums to be tested are inactivated for one half hour at 56.5° C. The complement is obtained the day before each series of tests by bleeding four to six guineapigs, thereby assuring a uniform strength. It is placed on ice over night. It has been said that complement left over night gains slightly in strength. Our experience has been that by this procedure it loses none of its power. An antishoop hemolytic system is employed.

The serum antigen complement mixture is incubated for one hour at 37.5° C. before the addition of sheep cells and amboceptor, the latter having been previously sensitized for one half hour in the thermostat. Antigen controls, containing five times the antigenetic dose, and serum controls for anticomplementary power are used in each series.

Too much emphasis cannot be placed upon the necessity of careful titration of the several factors when working with cholesterin antigens. Of special importance is the accurate adjustment of the complement and amboceptor. Our method consists of a cross titration of amboceptor and complement in varying dilutions. The best results have been obtained with the combination of 2.5 units of complement with 2.5 to three units of amboceptor.

The complement is diluted with eight or nine parts of saline, depending upon the titration for that particular day. The table below gives an example of the method of titration before each series of reactions.

Complement dil. 1-9	Amboceptor dilutions				
	1-400	1-600	1-800	1-1000	1-1200
1 c. c.	Complete	Complete	Complete	Complete	Almost complete
.5 c. c.	Complete	Complete	Complete	Complete	Marked hemolysis
.4 c. c.	Complete	Complete	Complete	Almost complete	Slight hemolysis

Readings are made at the end of one hour's incubation at 37.5° C. With the foregoing titration as a guide, the amboceptor would be diluted one to 400, representing 2.5 units, the complement would be used in one c. c. amounts, representing two to 2.5 units. Should 0.5 c. c. of complement fail to produce complete hemolysis with the amboceptor dilution of one to 600 at the end of one hour, a new dilution of complement with *eight* instead of nine parts of saline would be made.

The subjoined table indicates the comparative results of cholesterin and noncholesterin (alcoholic extracts and acetone insoluble lipoid) antigens:

Negative on all antigens.....	654	59.2 per cent.
Positive on all antigens.....	329	29.8 per cent.
Positive on cholesterin antigens.....		
Negative on non-cholesterin antigens.....	122	11.0 per cent.
	1,105	

Viewing the positive reactions the following facts appear:

Equally positive on all antigens.....	212	47.0 per cent.
Variation in strength of reaction in favor of cholesterin.....	117	29.9 per cent.
Absolute variation (positive on cholesterin, negative on other antigens).....	122	27.1 per cent.
	451	

From the foregoing tables it appears that eleven per cent. more positive reactions were obtained with cholesterin than with other antigens, and less than one half of the positive reactions were of equal degree, that is, showed an equal amount of inhibition of hemolysis with cholesterinized and noncholesterinized antigens, whereas slightly more than one quarter showed an absolute variation.³

Only those reactions showing one half or less hemolysis in the tube containing the full dose of antigen and 0.2 c. c. of patient's serum were called positive. Those showing more than one half hemolysis were read as doubtful and the reaction was repeated. In case the second result was the same as the first, a provocative dose of mercury was given with the view of bringing out a definitely positive reaction in case syphilitic infection existed. (See Case II below.)

When the writer first began to use cholesterinized antigens, some results were obtained which were without doubt nonspecific. The reason for this was that sufficient care was not observed in the preliminary titration of complement and amboceptor. Since the foregoing system has been adopted, the writer feels positive that nonspecific reactions do not occur. A slight variation from it, however, has on several occasions necessitated a repetition of a whole series of tests.

It should be borne in mind that less than two units of complement and amboceptor should never be used, and the best results will be obtained with

¹It has been shown that 0.4 per cent. cholesterin represents about one half saturation and that this is the optimum amount for use. Walker, I. C., and Swift, Homer F., *Jour. Exp. Med.*, xviii, 1, 75, 1913.

²Sachs, H., and Rondoni, P., *Ztschr. f. Immunitätsforsch.*, Orig. 1909, 1, 132, have shown that there is a difference in the turbidity of emulsions and in their anticomplementary and fixing power when the saline is added to the antigen slowly and rapidly; but Walker, I. C., and Swift, Homer F., *loc. cit.*, have demonstrated that if emulsions are allowed to stand for one hour after preparation, there is no difference in their anticomplementary nor fixing strength with either method of preparation.

³By absolute variation is meant that the result was positive with cholesterin antigens, and negative with noncholesterin antigens.

2.5 units of complement and 2.5 or three units of amboceptor.

A careful analysis was made of all the cases included in the tabulation, and because of insufficient data accompanying the specimens coming to the laboratory, or on account of the lack of sufficient evidence in the clinical history or physical examination to warrant the diagnosis or exclusion of syphilis, something over four hundred cases were omitted from consideration.

Thirteen apparently nonspecific reactions were obtained when cholesterin antigens were first used, before the plan outlined above for complement amboceptor titration was adopted. Five were from pregnant women awaiting delivery in the hospital. Of these four showed absolutely no hemolysis with the cholesterin antigen, but complete hemolysis with alcoholic extract of guineapig heart and acetone insoluble lipoids of beef heart. The fifth was a one plus reaction with cholesterin antigen and negative on a noncholesterin antigen, but when repeated at the end of one week, was negative. Two cases of vaginitis with no history nor clinical signs of syphilis, were positive on cholesterin antigens and negative on noncholesterin antigens. One showed no hemolysis and the other was a one plus reaction. The other six cases gave one plus reactions with cholesterin and negative reactions with other antigens; two cases were pulmonary tuberculosis, one of which was negative when repeated, one arthritis deformans, one gastritis, one a surgical case giving no evidence of lues, and the last a case of acute gonorrhea which was negative when repeated a second time.

The clinical condition in all thirteen cases was examined with care, and there was nothing in the history or physical examination to lead one to suspect syphilitic infection.

There were two doubtful cases of leg ulcers which gave positive reactions in the absence of any specific history or of other lesions pointing to syphilis except the ulcers. In neither of these cases could syphilis be excluded. Another case with a provisional diagnosis of chancroid, gave a positive reaction when first performed; later it was negative, no specific treatment having been administered, and no later reactions could be performed because the patient left the hospital.

Among the writer's series there were five paradoxical cases which gave positive reactions with noncholesterinized antigens and negative reactions with cholesterinized antigens:

1. Spinal fluid from a case with no diagnosis, negative on cholesterinized guineapig heart, positive on alcoholic extract of calf heart.
2. A case of treated syphilis, negative on cholesterinized guineapig heart, positive on alcoholic extract of syphilitic liver.
3. A case of treated syphilis, first reaction negative on cholesterinized human heart, positive on cholesterinized and alcoholic extract of guineapig heart, second reaction negative on cholesterinized guineapig heart, positive on acetone insoluble lipoids of beef heart.
4. A case of treated syphilis, negative on cholesterinized human heart, positive on alcoholic extract of and cholesterinized guineapig heart.
5. A case of cerebrospinal lues, negative on cholesterinized guineapig heart, positive on acetone insoluble lipoids of beef heart.

Table Showing the Comparative Results According to the Clinical Diagnoses.

Serum	Wassermann Diagnosis.	Cholesterin Antigens.			Alcoholic Extracts and Acetone Insoluble Lipoids.		
		Total.	Posi- tive.	Per cent.	Total.	Posi- tive.	Per cent.
I.	Primary lues.....	30	32	89	41	31	76
II.	Secondary lues.....	119	119	100	133	120	90
III.	Tertiary lues.....	48	48	100	59	49	83
IV.	Active lues ¹ , stage unknown.....	33	33	100	35	19	54
V.	Latent lues ² , treatment unknown.....	41	27	66	64	19	30
VI.	Treated lues ³	122	77	63	134	49	37
VII.	Cerebrospinal.....	24	13	54	26	11	42
VIII.	General paresis.....	7	4	57	7	3	43
IX.	Falces.....	48	32	67	51	17	33

Of the reactions performed upon the cerebrospinal fluids in cases diagnosed as syphilis or parasyphilis of the nervous system, seventy-five per cent. gave positive reactions with cholesterin antigens, and fifty-seven per cent. with other antigens.

The inordinately high percentage of positive reactions in divisions two, three, and four, may need some explanation. In tabulating these results, as previously stated, only those cases were included upon which satisfactory data could be obtained for a diagnosis. Some positive cases with no data concerning history or symptoms, were excluded on that account; likewise some negative cases upon which a tentative diagnosis of syphilis had been made by the one who sent in the specimen but with no facts concerning them, were similarly omitted from consideration in grouping the cases, unless they were accessible for examination by the serologist at the time.

The writer disclaims, from present experience, that cholesterin antigens give 100 per cent. positive results in all cases of active secondary and tertiary lesions. Statistics regarding this would probably be more accurate if taken from the private records of syphilographers rather than from those of a large hospital where the patients are constantly changing, many refusing to remain long enough for an accurate diagnosis to be made or for thorough observation.

An example of an accidental detection of a positive Wassermann reaction in an old treated case of lues with all symptoms entirely latent, seems to be of sufficient clinical interest to warrant a brief description.

CASE I. The patient was being treated by his physician for acute gonorrhea. His blood was submitted to the writer for the complement fixation for gonorrhea. As these reactions are performed at the same time as the Wassermann tests, the latter reaction was unintentionally done, with the result that it was found to be positive on two cholesterin antigens, and negative on an alcoholic extract of guineapig heart. This report was received with a large degree of doubt as to its accuracy, and the physician in attendance candidly expressed the opinion that this was a case of laboratory positive, but clinically negative lues, a situation, to say the least, unpleasant for the serologist. Subsequent inquiry, however, elicited the information that, twenty years previously, the patient had had frank lues, for which he pursued a thorough course of treatment, and since that time he had considered himself cured, no manifestations having appeared. After four injections of neo-salvarsan and twelve injections of the salicylate of mer-

¹All of the cases in this group were in active stages of syphilis, but from the clinical data an absolutely accurate classification as to the stage was impossible.

²In this group are included cases which give clear histories of syphilitic infection at periods varying from one to thirty years previously. At the time they presented themselves, all clinical signs were latent.

³Only those cases in which the facts regarding treatment were known, were included in this group.

cury intramuscularly, the reaction became negative and remained so.

For the purpose of showing the provocative value of mercury, the case below is briefly cited:

CASE II. The blood was submitted by a physician from another city from a case diagnosed as paresis, but giving no previous history of syphilitic infection. On September 16th, the Wassermann showed a \pm with a cholesterinized and negative reaction with a noncholesterinized antigen. The result was reported as doubtful, and the administration of mercury was advised with the idea of provoking a positive reaction. On October 7th, another reaction was done. For five days before the blood was taken for the latter test, one thirtieth of a grain of the protoiodide of mercury was given by mouth three times a day. This reaction resulted in a positive fixation with both cholesterinized and noncholesterinized antigens.

CONCLUSIONS.

1. Cholesterinized antigens are superior to simple alcoholic tissue extracts and acetone lipoidal insoluble antigens for the detection of syphilis in any stage. With these antigens eleven per cent. more positive results are obtained.

2. The greatest variation in results occur in latent and treated cases of syphilis, in which the diagnosis may be obscure; hence the greatest value in the use of cholesterinized antigens is in this class of cases.

3. Paradoxical cases occur in which negative results are obtained with cholesterinized antigens, and positive results with noncholesterinized antigens in less than 0.5 per cent. of all cases.

4. Careful preliminary titrations of all of the factors of the Wassermann reactions are necessary when employing this type of antigen. It is imperative that titrations of complement and amboceptor be made previous to each series of tests, in order to avoid nonspecific reactions. No less than two units each of complement and amboceptor should ever be used.

5. Frequent titrations of the anticomplementary strength of cholesterinized antigens should be made. The writer has found it more convenient to re-enforce a small quantity of alcoholic extract, which can be exhausted in from three to four weeks.

6. When doubtful results are obtained, provocative doses of mercury should be given and subsequent reactions performed.

For the generous cooperation of the visiting and the resident staffs of the Metropolitan Hospital in placing their cases at his disposal and in furnishing clinical data, the writer wishes to express his deep appreciation. He is also indebted to the physicians who have so kindly furnished him with the clinical histories of their private cases. Without such generous assistance this study would not have been possible.

375 PARK AVENUE.

Gastric Secretions in Infants.—DeWitt H. Sherman and Harry R. Lohnes, in the *New York State Journal of Medicine* for November, 1914, describe the effect of sugars on the gastric secretions. Their conclusions are: 1. The average gastric analysis of infants in thirty cases is: Free hydrochloric acid 2.20; combined hydrochloric acid 4.75; total acidity 8.85. 2. Cane sugar is only slightly more stimulating than milk sugar. 3. Malt sugar in the form of dextrimaltose is at least twice as stimulating to gastric secretion as either milk or cane sugar.

SYPHILITIC AORTITIS.

A Few Points in the Diagnosis.

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New York,

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Syphilitic aortitis is not an uncommon disease, but is commonly overlooked. The reason why many cases of syphilitic aortitis are not diagnosed is because the patient's history and the routine general physical examination may give no clue. Patients with a syphilitic history are loath to volunteer information. Many will deny it, others have really forgotten an old syphilitic infection to which they then paid little attention, still others seem not to know anything about such an infection.

The general physical examination may help very little. From my observation in some cases of syphilitic aortitis, the majority of them show nothing on physical examination which would lead one to suspect luetic infection. There may be no general enlargement of the superficial lymph glands, no Argyll Robertson pupil, no Romberg's sign, no changes in the patellar reflexes, nor any other evidence of an old infection. In many cases the patient's complaint is vague and indefinite and likely to divert the physician's attention from the real focus of disease.

In order to diagnose syphilitic aortitis the physician must bear in mind certain suggestive symptoms and a few cardinal signs:

1. Palpitation of the heart or an irregular unpleasant throbbing along the sternum, worse on exertion or excitement. On examination of the heart there is usually no enlargement, no changes in the cardiac sounds, no tachycardia, and no murmurs.

2. Attacks of angina pectoris. These may have their starting point in the sternum or in the precordial region. They radiate thence backward or upward and along the arms. The anginal pain may also begin in the left hypochondriac region and radiate upward.

3. Persistent pain in the left scapular region. This pain is usually attributed to rheumatism by those physicians who call all kinds of obscure aches and pains rheumatic.

4. A peculiar almost characteristic hoarseness of the voice, when once heard, is sufficient to attract the attention of the physician.

5. A persistent cough which has a certain croupy, dry, and harsh quality, and occasional attacks of dyspnea. On physical examination of the lungs one finds stridulous respiration, but nothing else to account for the cough. A patient of mine was treated for some time by his family physician for chronic bronchitis and asthma, when on examination I found an aortitis to be the cause of the cough.

The cardinal signs or evidences of syphilitic aortitis are:

1. Increased episternal dullness.
2. Increased radiographic shadow of the aortic arch.
3. Positive Wassermann test of the blood or cerebrospinal fluid.

Careful percussion along the manubrium sterni

will elicit an increased area of dullness to the right or left of the sternum or on both sides. An x ray is indispensable in these cases; it shows an enlargement of some part of the thoracic aorta. A positive Wassermann test of the blood or if necessary of the cerebrospinal fluid completes the diagnosis.

I would emphasize the importance of carefully percussing the upper sternal region in all routine physical examinations. The physician may be surprised to find signs of an enlarged aorta when least expected. While these symptoms and signs may be present in an aneurysm of the aortic arch, syphilitic aortitis lacks the signs of a real aneurysm which makes aneurysmal diagnosis comparatively easy. The importance of an early proper diagnosis in syphilitic aortitis becomes evident when one thinks of the benefit to the patient when put on antisyphilitic treatment in the right time.

The treatment in syphilitic cardiovascular disease should be both antisyphilitic and cardiotonic. Iron, quinine, arsenic, strychnine, and digitalis may be necessary, as the patient is kept under observation and his cardiovascular functions are watched from time to time.

1450 LEXINGTON AVENUE.

Therapeutic Notes.

Treatment of Streptococcic Arthritis.—John O'Connor, in the *Lancet* for July 25, 1914, calls attention to the utility of surgical intervention in many cases which present all the characteristic symptoms of rheumatic fever, but do not respond to salicylic acid or its derivatives. During the last ten years he has performed 214 arthrotomies, the majority in recalcitrant acute "rheumatic" cases. The mortality was nil, no septic infection nor valvular lesion followed, and the treatment applied, based on the streptococcic origin of the cases referred to, yielded uniformly good results. Special attention is directed by the author to a form of infective cellulitis which appears to be the dominant manifestation of the disease about ankle joints and wrist joints. Whenever a case fails to yield promptly to sodium salicylate, one half dram (2 grams) and sodium bicarbonate, one dram (4 grams) every three hours, together with salines, a milk diet, woolen clothing, etc., the author operates. All infected joints are opened, flaky turbid lymph is evacuated, free irrigation with warm oxygen water practised, and drainage tubes inserted, to remain *in situ* for three days. Multiple incisions are made into areas of periarticular cellulitis, and hot mercurial fomentations applied. Splints are used for from seven to ten days, after which the patient is requested to commence graduated active movements. When the wounds have healed gentle massage is ordered.

Emetine in the Treatment of Pneumonia and Bronchopneumonia.—Louis Rénon, in *Bulletins et mémoires de la société médicale des hôpitaux de Paris*, March 6, 1914, reports his experiences with emetine in the treatment of seven cases of croupous pneumonia and eight cases of bronchopneumonia. Of the former, in which the emetine was given in one third grain (0.02 gram) doses twice daily, six

ended in recovery. Although no effect of the drug in shortening the course of the disease was noted, defervescence took place by lysis instead of crisis in four instances, the temperature beginning to recede as soon as the emetine injections were started. In four cases bronchial breathing was observed rapidly to give way to rather coarse subcrepitant râles, which persisted until the temperature had receded to normal, and even somewhat longer.

In the cases of bronchopneumonia, all severe instances of the disease in patients ranging in age from sixty to seventy-seven years, more distinct therapeutic effects were noted. In some cases three one third grain (0.02 gram) injections were given daily. Dyspnea was manifestly diminished, the bronchial breathing diminished and later ceased, the râles were rendered coarser, and expectoration rapidly increased in amount. The temperature, where high, showed a tendency to fall. Recovery took place in seven instances. The emetine failed to bring on nausea and vomiting or to interfere with the renal function. Though the number of cases treated was small, Rénon is disposed to consider emetine administration appropriate in all instances of serious lung inflammation, and especially recommends the use of emetine in conjunction with camphorated oil injections, digitalis, and ammonium acetate in grave cases of bronchopneumonia.

Treatment of Pneumonia by Subcutaneous Injections of Blood.—V. Nesfield, in the *Journal of Tropical Medicine and Hygiene* for February 15, 1915, is credited with having recommended the following treatment in pneumonia: An attempt is first made to abort the disease by administration of:

℞ Sodii citratis, 3ss (2 grams);
Liquoris ammonii acetatis, 3ss (15 grams);
Spiritus ætheris nitrosi, { āā 3i (4 grams);
Magnesii sulphatis, }
Aque, 3i (30 grams).

M. Sig.: To be given in one dose and repeated every three hours.

Quinine sulphate is also given in ten grain (0.6 gram) doses three times daily.

If the disease continues on the third or fourth day, an attempt is made to augment the antibodies and introduce alexin into the system. This is done as follows: If there is at hand a patient who has just recovered from pneumonia, eighty minims (5 c. c.) of his blood are injected. If not, a stout vaccine syringe needle is introduced into a median basilic vein—artificially distended—and from two to six ounces (60 to 180 c. c.) of blood permitted to flow out, according to the state of venous congestion. The syringe barrel is then attached to the needle and eighty minims (5 c. c.) of blood drawn up. The needle is then withdrawn from the vein, inserted subcutaneously in the upper arm, and the blood injected. This blood clots, setting free alexin, antibodies, and probably toxins. Some relief is produced immediately by the venesection. Usually there is a rise of temperature of one degree Fahrenheit, which can be controlled, if necessary, by sponging. On the following day the temperature generally falls, the decline continuing to the extent of one degree or two degrees daily; or, a crisis may supervene. Among the nine cases of pneumonia treated by the method referred to, recovery took place in each instance.

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**THE HINMAN BILLS WOULD HAMPER
HEALTH OFFICIALS.**

Five measures have been introduced into the Legislature of the State of New York by Senator Hinman, of Albany county, which, if enacted, would seriously hamper the work of the Department of Health of the State of New York. These bills would reduce the salary of the sanitary supervisors, restrict the sanitary districts to ten, instead of the minimum of twenty now provided for, leave the organization of the divisions of the health department subject to the personal whims of each succeeding commissioner, and require the commissioner of health and the director of divisions of the department of health to devote their entire time to the duties of their office, thus rendering the present efficient commissioner ineligible and seriously hampering the department in the selection of chiefs of divisions. The men most efficient in these offices are, as a rule, men who cannot devote their entire time to the service of the State, but, nevertheless, on account of their special qualifications, prove invaluable in office. The State Charities Aid Association and similar bodies have been carrying on an active campaign against these objectionable measures. Physicians, as a rule, can exercise considerable influence if they choose to do so, and whenever the welfare of a State is at stake, as it seems to be in this case, they would do well to bring

what pressure they can against such objectionable measures. These bills are known as Nos. 1940, 1941, 1942, 1943, and 1835; physicians who wish to protest against them should communicate with the assemblymen and senators who represent them in the Legislature, with Governor Whitman, with the speaker of the assembly, Thaddeus E. Sweet, Albany, and with the leader of the majority in the Senate, Hon. Elon R. Brown, Albany.

THE DISPENSARY OF THE FUTURE.

Will not the dispensary of the future be devoted almost entirely to education in hygiene? The tendency in this direction is so rapid that one might say that the dispensary of the future is already half realized. Take, for instance, the dental clinic, which, if the latest addition to the dispensary of the past, is perhaps most appreciated as a part of the dispensary of the present, and will change little in future. Teeth are cleaned and filled instead of being promptly extracted as was the custom not long ago. Pyorrhœa alveolaris is cured, if necessary, but more of it is prevented by schooling in the care of the teeth. The clinics in the dispensary of the future are as interdependent as the organs of the body which they treat, and the dental clinic is really a part of the gastrointestinal, the pediatric, the orthopedic, the general medical, and the tuberculosis clinics.

The tuberculosis clinic is a full fledged department of the new dispensary. This is no longer a place for passing out prescriptions, but of teaching how to live and how to let live on a broad scale. The pediatric clinic already has one foot in the dispensary of the future in the form of its milk station and its mothers' conferences. The orthopedic clinic, instead of dosing its patients with salicylates and putting its functionally impaired children through fatiguing corrective exercises, sends the former to the dental and gastrointestinal clinics and the latter to the dental, nose and throat, or eye, or pediatric clinic, according to the source of drain upon the inherent neuromuscular forces which make for good posture, and help in the prevention and cure of tuberculosis. Its special corrective treatment can only do good after such general bodily correction.

These straws show which way the wind begins to blow. The gastrointestinal clinic of the future, instead of handing out a piece of paper calling for hydrochloric acid or rhubarb and soda, will line up its clientèle, as the pediatric clinic does its mothers, and instruct them in food materials, methods of cooking and eating. It will have a model kitchen and dining room and will serve samples of model

bread and cake. It will lecture on candy and instruct parents how to manage this habit. Instead of giving cascara and calomel, it will refer its long but shortening line of sufferers from constipation to the dietary department, and to the work and muscular exercise department of the neurological clinic. This latter clinic, while it may still have its high frequency machine, will be instructing and practising its patients in mind absorbing muscular and mental work, and it will find little need to refer its patients elsewhere, except to the dietary clinic. The throat and nose clinic will have an exhibit of simple means of ventilating, and of protecting the body against extremes of cold and wet. It will be preaching the use of rubber overshoes and the mackintosh far more than it will be prescribing douches for catarrh. The eye clinic will exhibit correct methods of lighting and of posture for reading and working. The skin clinic will be larger in quarters, but fewer in patients than at present. It will teach methods of bathing and of general cleanliness, and will make use otherwise of the neurological, gastrointestinal, and genitourinary departments. Just how this last clinic will carry on its work, is hard to say. Will it give phonographic lectures on the hygiene of sex, and have moving pictures which will move the prurient to avoid promiscuity? Doubtless this will be the last of all the departments to become a part of the dispensary of the future, though it may be helped by other clinics.

There will be a remnant left of the old time dispensary—there will be some necessary dispensing of drugs and some surgery, but with the development of the new methods the old are bound to fall more and more into the background. Prevention will forestall cure or the attempt to cure. The dispensary of the future will not belong solely to the large city, but it will be an integral part of the county, or perhaps township department of health. It will be a place for dispensing health ideals and establishing health habits, and not for distributing pills and powders. Its materia medica will be sunlight, soap and water, sensible food in sensible amounts, mind absorbing work and recreation, and high ideals of living.

THE TEACHING OF SEX HYGIENE.

The change which has taken place in the public mind in regard to the teaching of sex hygiene is shown in the fact that when Dr. B. Sherwood Dunn, of Paris, made, while on a visit to this country, an address by invitation before the Tri-State Medical Society in Louisville, in 1897, in which he strongly advocated such teaching, especially in the public schools, a storm of opposition was raised, and it was

asserted that any physician who recommended a measure of this kind was an unworthy representative of the profession and not a reputable member of society. At the present time there can be little question that there is general appreciation of the importance, and even the necessity of having young people of both sexes instructed in this subject, though there exists an honest difference of opinion as to just where, how, and when it should be handled. The subject is attended with many difficulties, as is attested by the fact that although for some time past there have been in existence for its consideration a National and many State and local committees, composed of public educators, as yet no definite conclusions have been reached.

Doctor Dunn, who has devoted many years to enthusiastic study of the matter, is still of the opinion that sex hygiene can be properly taught only in public schools. From time to time it has been argued that the instruction might be derived from such sources as the clergyman, the physician, the parent, and the teacher, but he holds that failure must attend such divided responsibility, and, in company with many others, urges that this work can be done most satisfactorily by the teacher. On account of the great delicacy attending this subject and the many pitfalls surrounding it, it is the part of wisdom to go slowly; and this is the view expressed by Mr. James Peabody, chairman of the committee on biology of the National Education Association, himself a teacher of wide experience. At present very few public school teachers are competent to instruct in sex hygiene, and the time has not yet arrived when parents can well abdicate and hand over to strangers the task of imparting this knowledge to their children. Many are willing to teach, but are not sufficiently well informed; and one of the great needs of the day is adequate instruction of parents on this subject. In view of the deficiencies of parents, Mr. Peabody has for some time been conducting among the older boys at the Morris High School, in this city, elective courses in biology in which sex education is included, and this experiment has been attended with gratifying success. On the other hand, the plan of engaging physicians, who came from outside and had no acquaintance with the children, to give lectures on the subject in the public schools, which was tried in Chicago, proved unsatisfactory, and had to be abandoned. It seems to be agreed that any instruction of this character, whether in schools or elsewhere, should be given to the sexes separately. When, as time goes on, the community shall have become better informed in regard to the matter and public sentiment has grown more enlightened, the whole problem will, no doubt, prove less difficult of solution than now seems possible.

A NEW PUBLICATION OF THE DEPARTMENT OF HEALTH.

Under the general title, *Chronicle*, varied by the name of the section which it is designed to interest—e. g., *Chelsea Chronicle*—the department of health has begun the issue of a monthly periodical along the lines of what publishers know as "boiler plate"; one column is reserved for local news, while the remainder of the four pages is given up to useful and interesting hints and advice concerning health and hygiene. These are conveyed in the simplest language; in fact, the leading feature of the issue for April is a sketch entitled *On the Water Wagon*, which is written mainly in the popular slang of the day and is therefore likely to make an impression which the same story told in more dignified language might fail altogether to impart. Readers are referred to the principal local free dispensary for personal advice or are advised to write direct to the department in an emergency. The *Chronicle* is edited by Dr. Charles F. Bolduan, director of the Bureau of Public Health Education, which promises well for the success of this novel and original venture.

VESICULECTOMY IN TUBERCULOSIS OF THE GENITALIA.

The profession was once in favor of vesiculectomy in tuberculosis of the genital organs, but a healthy change in ideas has of late taken place and conservative treatment is looked upon more favorably. It is far too common to consider as cured a patient who does not return for treatment; it is quite difficult, therefore, to estimate correctly the outcome of these cases. Primary or isolated tuberculosis of the epididymis, which had been considered common, is now looked upon as the exception; generally it coexists with lesions in other parts of the genital organs. The urine is frequently purulent, and out of a total of 104 specimens from the Massachusetts General Hospital, Barney found that thirty-nine contained pus, while out of eight inoculated guineapigs, seven showed positive tuberculous lesions. It is clear, therefore, that an operative interference which is limited to the genital apparatus will not eradicate the entire trouble; it is also clear that unless one is dealing with extensive and advanced tuberculous lesions, the diseased seminal vesicles may be overlooked, as usually there are no functional symptoms unless the vesicles are so enlarged as to cause pressure on the rectum.

A most important argument for noninterference is the regression of the process in a large proportion of deep seated lesions after removal of the tuberculous testicle. This regression has been observed by

many operators of vast experience and cannot be denied, but it does not invariably occur. It is safe to say, perhaps, that generalization—usually a meningitis—occurs in about twelve per cent. of the cases operated in, which is practically the same result observed in operative treatment for tuberculous lesions elsewhere. Another, and not the least important reason for discarding vesiculectomy is the difficulty in attaining the vesicles, not to speak of the many complications to which interference may give rise.

Rupture of the vas deferens, urinary fistula, the possibility of injury to the ureter, when duly considered, offer little attraction or pleasure to the operator, no matter how great his skill. For these reasons many prefer to abstain from operation, which is always long and difficult, frequently unfortunate, and often barren of results, while less intricate operations are followed by a regression of coexistent lesions. A simple palliative treatment, or epididymectomy, not infrequently turns out quite as well, and without any of the complications referred to. Vesiculectomy has given some excellent results, but it must be admitted that they are the exception, and extirpation of the vas and seminal vesicles therefore should be an exceptional operation, the wisest course being simple vasoepididymectomy and, in selected cases, castration.

A PRELIMINARY TO IODINE DISINFECTION.

Eynard, of Marseilles, communicates to *Presse médicale* for April 1st, a warning that tincture of iodine may reach only the superficial layers of an infected wound, while germs continue to swarm underneath, as well as on the inadequately cleansed hands of the surgeon. He advises, therefore, the preliminary use of gasoline, which is plentiful in the war territory, to cleanse both the operator's hands and the deeper parts of the wound. Gasoline is not only a wonderful cleanser, but is somewhat antiseptic. It is very inflammable and also irritating to an angry surface. Where the neighboring tissues are reddened, therefore, Eynard advises the application of the following ointment: Resorcinol and zinc oxide, of each ten grams; petrolatum, 100 grams. The subsequent washing with gasoline should extend as far as possible in every direction from the wound.

A WAR SUPPLEMENT FROM MCGILL.

The *McGill Daily* has issued a handsomely illustrated folio supplement, dated March, 1915, devoted to the European war. McGill University has organized a battalion among her students and has furnished a large number of surgeons to the allied forces. Among other contributions, the supplement contains *The War of Words*, by Dr. J. George Adami; *The McGill General Hospital*, by Dr. H. S.

Birkett, dean of the medical faculty; and Sidelights on the Supermen, by Stephen Leacock. There are a number of portraits of officers and men of the battalion, among whom are Doctor Birkett, Doctor Adami, Dr. W. G. Turner, Dr. H. M. Little, Dr. E. W. Archibald, Dr. J. C. Meakins, Dr. L. L. Reford, Dr. John McCrae, Dr. C. K. Russell, and Dr. E. M. Elder.

In Memoriam.

JOSEPH H. RAYMOND, A. M., M. D.,
of Brooklyn-New York.

The faculty of the College of the Long Island College Hospital is desirous of placing on record a memorial minute on its late associate, Professor Joseph H. Raymond, A. M., M. D., secretary of the faculty.

Doctor Raymond was born in Brooklyn, New York, November 18, 1845. He was the son of Israel Ward Raymond and Frances Bryant Howard. He received his preliminary education at the Brooklyn Polytechnic Institute and graduated from Williams College in 1866, receiving his A. M. degree three years later. He was a graduate in medicine of Long Island College Hospital, in 1868, and of the College of Physicians and Surgeons in New York in the following year. He served as intern of the Nursery and Child's Hospital and Idiot Asylum on Randall's Island, N. Y., and subsequently in Brooklyn Hospital. He spent several years in general practice and was well equipped in all respects to succeed as a general practitioner; but his taste led him to relinquish such duties and to devote his time to the teaching of physiology and sanitary science. For many years, he was connected with the health department as sanitary inspector, sanitary superintendent, deputy commissioner and commissioner of the Brooklyn Board of Health. Brooklyn never had a more efficient health commissioner; his experience and training in subordinate positions rendered him peculiarly fit to assume the responsible duties. He made no enemies, except lawbreakers, while holding this office, the duties of which require tact and good judgment. He did his full share in gradually lowering the death rate of the city, not only by his efforts as commissioner of health, but by his teaching at Long Island College Hospital.

Doctor Raymond was an ideal secretary of the faculty for nearly thirty years. He not only attended to the minutiae of the office, but he foresaw, and bent every effort to secure measures calculated to further the welfare of the school. It was at his suggestion that the late Mrs. Theodore Polhemus, when generously donating a fund for the erection of the Polhemus Memorial Clinic in memory of her husband, added sufficient space to be used for the instruction of students; so that the college, through Doctor Raymond's foresight, has a structure admirably equipped both for teaching and clinical work.

Beside his work in and for the Long Island College Hospital, Doctor Raymond was interested actively in general and medical education as a trustee of the Brooklyn Polytechnic Institute, a director of

the Brooklyn Eye and Ear Hospital, editor of the *Brooklyn Medical Journal*; author of a *History of the Long Island College Hospital and Its Graduates* and of a standard work on physiology, as well as numerous papers on medical and sanitary subjects. He was an excellent French and German scholar, and became much interested in Esperanto and attended the Esperanto congress in 1908 in Dresden. He served as secretary and treasurer of the Hoagland laboratory and as secretary of the Polhemus Memorial Clinic. He was at one time medical examiner for the New York Board of Education. He was a member of the Medical Society of the County of Kings, New York Physicians' Mutual Aid Society, vice-president of the American Public Health Association; visiting physician, St. Peter's Hospital and other societies and charitable institutions.

In 1875, Doctor Raymond married Miss Nannie Van Nostrand Gardiner, who died in 1898. He subsequently married Mrs. Rachel Biddle Craven, of Philadelphia, who, with her son and daughter, survives him. He is also survived by a daughter by his first marriage, Mrs. Ernest W. Congdon, and by one grandson. Personally, Doctor Raymond was a charming companion and associate—alert of body, quick in thought, word, and action. His white hair was the only physical feature that made one think of him as a man past middle life. He thought the present times were better than the past and that future times would be better than the present. Quick at repartee, of ready wit, he could always tell a story a little better than the one told to him. When some one complained that at present it cost more to live than formerly, he replied that it is worth more to live at present. His reply to one who quoted, referring to the great men of the past, "there were giants in those days," was "Goliath's bulk didn't save him from little David's stone and sling." Courteous and considerate of the feelings of others, he endeared himself to students of the college and to all members of the faculty who had for so many years been associated with him. He leaves behind him a life full of good words and works, and a memory of his personality that the faculty will always cherish.

Committee: { FRANK E. WEST, M. D., *Chairman*.
 { W. B. BRINSMADE, M. D.
 { J. A. MCCORKLE, M. D.
 { J. D. RUSHMORE, M. D.

News Items.

Changes of Address.—Dr. Joseph Blinder, to 8669 Bay Twenty-fourth Street, Bensonhurst, Brooklyn.

A Warning.—Dr. David Trumbull Marshall, of Hollis, L. I., warns the profession through the *JOURNAL* against a man, who takes orders for printing for doctors, collects the money, and never delivers the goods. He says his place of business is in this city.

Philadelphia Civil Service Examinations.—Among the positions for which the Philadelphia Civil Service Commission will hold examinations on April 29th, are the following in the medical service: District police surgeon, assistant physician, assistant resident physician, and intern (woman). On June 2d, there will be an examination for the position of resident physician in the Department of Health and Charities, salary \$600 to \$900 a year.

Thorn Christian Science Bill Defeated.—The Thorn bill exempting practitioners of Christian Science from the law requiring candidates to pass an examination and obtain a license in order to practise medicine in the State of New York has been defeated in the Assembly by a vote of 79 to 46.

Pennsylvania Physicians Support Local Option Bill.—It is reported that over 700 physicians have signed petitions to the Pennsylvania legislature asking for the passage of the local option bill. The list includes the presidents of medical societies, heads of hospitals, and men prominent in health work.

American Oncologic Hospital.—A new wing to this hospital, which is situated at Thirty-third Street and Powellton Avenue, Philadelphia, was opened on April 17th, with suitable ceremonies. The basement of the new building is devoted to the x ray department, the operating rooms are on the first floor, and on the third floor are four wards of two beds each for women.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, April 26th, Section in General Medicine of the College of Physicians, North Branch of the County Medical Society; Tuesday, April 27th, Medicolegal Society, West Philadelphia Medical Association, Society of Normal and Pathological Physiology; Wednesday, April 28th, County Medical Society; Friday, April 30th, Medical Club (directors), Southeast Branch of the County Medical Society.

Naval Medical School.—Commencement exercises of the United States Naval Medical School were held in Washington, D. C., on Thursday, April 15th, under the direction of Medical Director James D. Gatewood, the commandant of the school. Secretary Daniels presented diplomas to the twenty members of the graduating class. Addresses were delivered by Surgeon General William C. Braisted, United States Navy, Secretary Daniels, Medical Director James D. Gatewood, and Dr. Paul B. Barringer, former president of the University of Virginia.

The State Care of the Insane.—The State Charities' Aid Association has issued a statement declaring that an appropriation of at least \$1,000,000 is needed for the proper care of insane patients in New York State. The average increase each year in the number of insane patients for whom the State must provide care and treatment is said to be about 800 and the annual expense for each one is about \$1,000. All State hospitals are overcrowded, especially the institutions on Ward's Island, where it is said there are one third more patients than the buildings are supposed to accommodate.

Civil Service Examinations.—The Municipal Civil Service Commission of New York has announced the following examinations: Physician, to supervise the various clinics, tuberculous, venereal, and antirabic, of the Department of health, salary \$1,200 to \$1,500 a year; surgeon, with a thorough experience in operations on tonsils and adenoid tissue, salary \$1,560 a year; pathologist and bacteriologist, salary, \$1,320 a year, with maintenance. For the last named position there is a vacancy in the Kings County Hospital. For full particulars regarding these examinations address the Municipal Civil Service Commission, Room 1,400, Municipal Building, New York. Four cents postage must accompany requests by mail for application blanks.

Personal.—Dr. David L. Edsall, professor of clinical medicine at Harvard Medical School, delivered the annual address of the Pathological Society of Philadelphia on Thursday, April 22d, his subject being Bearings of Industry upon Medicine.

Dr. J. Chalmers Da Costa will be the guest of honor at the annual banquet of the Northern Medical Association, of Philadelphia, on Tuesday evening, April 27th.

Dr. J. Solis Cohen has presented to the Philadelphia Laryngological Society his extensive library of magazines, and a complete set of his reprints, dating from 1874 to his latest article. This library will be known as the J. Solis Cohen Foundation.

Dr. Edmond W. Wilson has been promoted to the position of assistant superintendent of the Boston City Hospital, filling the vacancy caused by the resignation of Dr. Frank H. Holt, who has assumed his new duties as superintendent of the Michael Reese Hospital, of Chicago.

Boylan Antinarcotic Law Modified.—The Bloch bill, modifying the Boylan antinarcotic law so as to bring it into harmony with the National antinarcotic law (the Harrison law), has been passed by the legislature of the State of New York and signed by the Governor. Under this law the Department of Health of the State of New York may recognize the certificates required by the Federal authorities for the purchase of narcotic drugs under the Harrison law, and it is understood that this will be done.

Rabies in California.—In a special report on the subject of the prevalence of rabies in California, transmitted to the California State Board of Health on March 9, 1915, by Dr. W. A. Sawyer, director of the State Hygienic Laboratory, Doctor Sawyer states that the epidemic of rabies which became important in the summer of 1909 in southern California has spread to all parts of the State, excepting Humboldt and adjacent counties in the north-eastern corner. The entire State has become involved, except the more inaccessible regions. Study shows that wild animals have played a minor part in the spread of the disease, and that the domestic dog has been almost entirely responsible. Of 1,170 heads of animals examined in the State laboratory, rabies was found in 859 instances. A number of heads of coyotes were examined, but only one was found infected.

Isolation of the Germ of Typhus Fever.—At a meeting of the New York Pathological Society, held on Wednesday, April 14th, Dr. Harry Plotz, of Mt. Sinai Hospital, announced the isolation of a Gram positive pleomorphic anaerobic bacillus from the blood of fifty per cent. of a series of cases of epidemic and endemic typhus fever (Brill's disease). The bacilli isolated from both types of the disease are identical in their cultural and serum reactions. The bacilli are found only in small numbers in the blood, but have been isolated during the febrile period and as long as thirty-six hours after the crisis. As the disease progresses, the agglutination and the complement fixation reactions become positive, using the bacilli or extracts in the tests. Because of the shortness of the disease, these reactions are positive more often during convalescence. When cultures are injected into guinea-pigs or monkeys, they cause a febrile reaction similar to that obtained by the injection of blood from a case of typhus fever. The bacilli in cultures quickly lost their virulence. Whether the injection of cultures will protect animals against the inoculation of virulent blood was not stated. The adoption of preventive inoculation with vaccines made from the cultures depends on such immunity tests in susceptible animals. While a few points need further study, the evidence brought forward by Doctor Plotz and his colleagues at Mt. Sinai Hospital indicate, in the opinion of the city health department, that the bacillus discovered is the cause of typhus fever.

News of the Medical Schools.—An anonymous gift of \$4,000 has been made to the College of Physicians and Surgeons, Medical Department of Columbia University, for surgical research.

The Atlanta Medical College is to become the medical department of Emory University, Atlanta, and for this purpose the trustees of the latter institution have suggested that \$250,000 be set aside as an endowment. The trustees have also agreed to erect a new teaching hospital near the medical school, to cost approximately \$350,000.

The University of South Dakota has just completed the erection of a fireproof chemistry building at a cost of \$100,000. Dr. Alfred N. Cook is head of the department.

Dr. H. Roy Dean, professor of pathology in the University of Sheffield, has accepted the chair of pathology in the University of Manchester, England.

At the University of Oregon, Dr. Harold B. Myers, formerly connected with the University and Bellevue Hospital Medical College, has been appointed professor of materia medica and therapeutics, and Dr. Howard D. Haskins, formerly a member of the staff of the Western Reserve University School of Medicine, has been made professor of physiological chemistry.

The Wistar Institute, of Philadelphia, has received a request from the Japanese government to allow a medical officer of Japan to study neurology at the institute under Professor Donaldson.

Gifts amounting to \$72,908, to be devoted to cancer research at the Harvard Medical School, were announced on April 14th. Of this sum \$50,000 was provided by the will of Philip C. Lockwood, of Boston.

Interesting Exhibits at the Panama-Pacific Exposition.—Several departments of the United States Government are represented in the exhibits installed in the Palace of Liberal Arts at the Panama-Pacific International Exposition at San Francisco. Among these are the Public Health Service of the Treasury Department, the Medical Corps of the Army, and the Bureau of Medicine and Surgery of the Navy. There will also be an exhibit of the American Red Cross Society, and the Bureau of Standards, the latter exhibit being of special interest as showing the various false weights and measures in use today. A number of trade exhibits are also made by manufacturers of articles of interest to physicians and surgeons.

American Relief for the Belgian Profession.—During the week ending April 17th, the following contributions for the relief of the medical profession in Belgium were received by Dr. F. F. Simpson, of Pittsburgh, treasurer of the Committee of American Physicians for the Aid of the Belgian Profession: Fort Wayne Medical Society, Fort Wayne, Ind., \$25; Ramsey County Medical Society, St. Paul, Minn., \$25; The New Castle Physicians' Club, New Castle, Pa., \$10; The Harrison County Medical Society, Gulfport, Miss., \$25; The Cumberland County Medical Society, Portland, Me., \$25; The Waterbury Medical Association, Waterbury, Conn., \$13; Dr. William T. Hamilton, Philadelphia, \$5; Dr. Charles Alfred Dukes, Oakland, Cal., \$5; Dr. P. St. L. Moncure, Norfolk, Va., \$5; Dr. R. T. Stratton, Oakland, Cal., \$5; Dr. R. J. E. Scott, New York, \$5; Dr. W. C. Cahall, Germantown, Pa., \$2.75; Dr. Richard Dewey, Wauwatosa, Wis., \$10; Dr. E. H. Ruediger, Manila, P. I., \$10; Dr. Lucretius H. Ross, Bennington, Vt., \$10; Mr. A. W. Burnham, Pittsburgh, Pa., \$5. Total, \$185.75.

Medical Society of the Missouri Valley.—The spring meeting of this society, held in Omaha, March 25th and 26th, under the presidency of Dr. Granville Ryan, of Des Moines, Iowa, was in many respects the most successful in the history of the organization. More than three hundred physicians attended and an excellent program was presented. Dr. Fred H. Albee, of New York, delivered a lecture on bone graft, which was illustrated by lantern slides. Dr. Charles Spencer Williamson, of Chicago, gave a talk on the heart, with special reference to overstrain. Dr. Paul Paquin, formerly of Asheville, N. C., and now of Kansas City, read a paper on Early Symptoms of Tuberculosis, with special reference to those of the alimentary system. Dr. Reuben Peterson, of Ann Arbor, made a strong plea for the mother in labor cases where craniotomy was indicated. Dr. Arthur A. Law, of Minneapolis, gave an illustrated lecture on the Status of the Autograph. Dr. Edward G. Blair, of Kansas City, read a paper on goitre, presenting photographs of patients successfully treated. The Committee of Arrangements consisted of Doctor Lord, Doctor Bliss, and Doctor Bushman, and to them belongs much of the credit for the success of the meeting. The next meeting of the society will be held in Des Moines.

Medical Appointments at the Louisville City Hospital.—A petition carrying approximately 6,000 names has been presented to the mayor of Louisville, Ky., asking that the 400 physicians not connected with the University Medical College be permitted the same representation upon the Hospital Committee as are the forty doctors connected with this college. It is contended that the Louisville City Hospital, while a public institution, is open only to a few physicians who are connected with the medical school, while the majority of the city's doctors, who, as taxpayers, help to support the institution, are denied its educational benefits. The petition was prepared by the Committee on Hospital Propaganda, a committee pledged to a system of equal representation for school and nonschool men on the City Hospital Committee appointed by the Board of Public Safety after certification by the trustees of the University of Louisville Medical School. The controversy between school and nonschool men regarding medical appointments for the City Hospital has been carried on for over a year, and this petition is the latest development. The committee on hospital propaganda is composed of the following members: Mr. Vincent Smith, chairman, and Mr. Theodore Ahrens, Mr. Otto Ufer, Rabbi Ignatius Mueller, Dr. J. A. Flexner, Dr. A. M. Barnett, Dr. M. Casper, Dr. Jacob Hubbuch, Mrs. Louis Becker, Dr. Peter S. Ganz, Dr. August Schachner, Dr. George L. Coon, and Dr. B. J. Lammers.

The Tuberculosis Hospital Admission Bureau.—Tuberculous patients are occasionally referred by physicians directly to various tuberculosis hospitals for admission. These institutions invariably send the patients to the Tuberculosis Hospital Admission Bureau for examination and admission in due form. The attention of the physicians of New York is called to the fact that the Tuberculosis Hospital Admission Bureau, 426 First Avenue, receives applications for, and admits to the following tuberculosis institutions:

Hospitals—Bellevue, Brooklyn Home, Metropolitan, Montefiore Home, New York Throat, Nose, and Lung, Riverside, St. Anthony's, St. Joseph's, St. Vincent's, Sea View, Seton.

Sanatoriums—Municipal Sanatorium, Otisville, N. Y., New York State Hospital for Incipient Tuberculosis, Ray Brook, N. Y., Montefiore Home Country Sanatorium, Bedford Hills, N. Y.

Preventoriums—Tuberculosis Preventorium, Farmingdale, N. J., Tuberculosis Preventorium, Nanuet, N. Y.

Expert Testimony Bill Signed by Governor Whitman.

—The bill introduced into the New York State legislature by Assemblyman Fairbanks to amend the judiciary law in relation to the appointment of examining physicians in criminal or special proceedings, has been signed by Governor Whitman and takes effect immediately. The bill amends chapter thirty of the consolidated laws, by inserting a new section to read as follows:

Sec. 31. Examining physicians. In a criminal action or proceeding or in a special proceeding instituted by the State writ of habeas corpus or certiorari to inquire into the cause of detention, in which the soundness of mind of a person is in issue, the court in which or the judge or justice before whom the action or special proceeding is pending may appoint not more than three disinterested competent physicians to examine such person as to his soundness of mind at the time of the examination. Any such examining physician may be sworn as a witness at the instance of any party to the action or proceeding. The compensation of such examining physician for making such examination and testifying, when certified by the presiding judge or justice of the court or judge or justice making the appointment, shall be paid out of any funds available for the payment of and in the same manner as other court expenses.

Dr. Dwight H. Murray, of Syracuse, has been leading the forces in favor of the adoption of the measure, for eight years. Other members of the committee are Dr. Edward D. Fisher, Dr. Charles L. Dana, and Dr. John A. Wyeth, of New York. The bill had the endorsement of the State Bar Association and the Medical Jurisprudence Society of New York.

The Week's Mortality in New York.—The epidemic of influenza of which mention was made last week, continued during the week just passed, there being 35 deaths reported from this cause alone against 15 deaths in the corresponding week of 1914. If the ravages of influenza were measured simply by the number of deaths attributed to it alone, the apparent effect of this infection on the mortality rates would be deemed to be very slight indeed. Experience, however, has shown that the mortality from nearly all other causes increases in direct proportion to the increase in the prevalence and virulence of this disease. According to Deputy Health Commissioner Emerson, the best way to avoid catching influenza is to walk a mile in the open air twice a day. "It will," says the doctor, "add ten years to your life; if you don't believe it, try it and see. Don't ride in a crowded car or subway when going only a short distance. Walk!"

Among causes of death that swell in great measure the mortality returns, there was not a single one during the past week that did not show an increase in the number of reported deaths compared with the returns for the corresponding week of the year 1914. The most notable increases were among the following: Lobar pneumonia in which the increase was practically double, as was also that from acute bronchitis. The number of deaths from bronchopneumonia increased about 30 per cent., from pulmonary tuberculosis 35 per cent., from organic heart disease about 17 per cent., from chronic Bright's disease about 12 per cent. The number of deaths reported during the week was 1,778 against 1,566 during the corresponding week of 1914, the death rate increasing from 14.63 to 15.98 per 1,000 of the population.

Pith of Current Literature.

WIENER KLINISCHE WOCHENSCHRIFT.

March 18, 1915.

The Amputation Stump; Its Ability to Carry the Body, by Joseph Ballner.—Osteoplastic amputations according to the method of Pirogoff, Gritti, etc., give a good stump. In some cases the patella, when given a new position on the femur high up, will not hold. In performing amputations through the diaphysis of the leg, the method of Bunge is to be preferred to the method of Bier, as the technic is simpler and a stump which is better adapted for the support of the weight of the body is obtained. This is especially true in cases where healing by primary intention is doubtful or where external conditions do not guarantee an aseptic course. In view of the author's experience in the Turkish-Bulgarian war, he regards it as the only method to be carried out on the battlefield. A distinct advantage of the aperiosteal method of Bunge is that the function obtained is permanent. Although in stumps of the thigh the question of support of the body weight does not play as great a part as in stumps of the leg, the method of Bunge is, nevertheless, to be preferred, as a stump which is not sensitive always insures better walking than a sensitive one. Stumps, when amputations according to Bunge are performed, do not become sensitive; it is an excellent plan and one advised by Kocher to make use of the mechanical method of Hirsch to make the stump insensible from the beginning. This method has been tried often and has given uniformly good results.

Temperature in Convalescence from Dysentery, by N. von Jagic.—The temperature is of little significance during the course of this disease. It may last for several weeks or it may be present only during the prodromal stage. Cases in which the stools had been normal from two to four weeks and in which no complications were present showed axillary temperatures of 37° to 37.8° C. for from six days to three weeks. Some of these cases presenting no subjective signs or symptoms, may on rectoscopic examination reveal ulcerative changes in the intestine which in all probability cause the rise in temperature. The subfebrile temperature observed in the convalescence from dysentery is in direct contrast to that which is found in typhoid fever, where, during convalescence, normal or subnormal temperatures are the rule. The slight fever which may be present during the convalescence from dysentery might lead to the diagnosis of a slow infectious process such as endocarditis or tuberculosis by those who are not familiar with the fact that it occurs at this time.

Tetany and Myotonia congenita (Thomsen's Diseases), by Paolo Blau.—The patient, a soldier, twenty-one years of age, gave the history of having spasms involving the muscles of both extremities symmetrically; also of spasms involving the voluntary muscles. He was brought to the hospital because while marching he suddenly found it impossible to continue. The family history shows that he has an uncle and a sister who are similarly affected. The attacks of cramps come on after a long rest—in

the morning on arising. They begin with a drawing pain in the back of the neck, paresthesia, and a heavy feeling of the lower extremities, and the face shows a contraction of the muscles. The duration of the attack is from four to fifteen minutes and can be brought on by excitement. The case is of interest because it presents a combination of tetany and myotonia congenita.

PARIS MÉDICAL.

February 13, 1915.

Treatment of Septic Wounds in Extensive Injuries of the Extremities, by Mencièrè.—Vigorous antiseptic measures are essential to success in dealing with extensive, mutilating, infected wounds of the limbs, in particular in military practice. Successive treatment with three antiseptics, corrosive sublimate in one in 1,000 solution, phenol in 2.5 per cent. solution, and hydrogen dioxide solution diluted with two parts of water, is strongly recommended. The permanent dressing should consist of wads of gauze dipped in the following solution: Iodoform, guaiacol, and eucalyptol, of each ten grams; balsam of Peru, thirty grams, and ether, 100 grams. This dressing should be renewed daily. On the first three or four days the three antiseptic solutions should be used to irrigate the wound before the iodoform mixture is reapplied. After this, the tissue cells should be spared, hydrogen dioxide solution diluted with two or three parts of water being alone used for irrigation. Ample drainage with glass tubes should be instituted. Where there are deep, linear wound cavities, the iodoform mixture which, while strongly antiseptic, does not injure the tissue cells and attracts phagocytes, may be injected into them with a syringe. Where no hydrogen dioxide is at hand the iodoform mixture may be substituted, upon addition of 900 parts of ether to the 100 parts already contained. Excellent conservative results and rapid disappearance of septic conditions were obtained by Mencièrè by the procedure mentioned, which proved superior to the use of formaldehyde, sodium salicylate, tincture of iodine, and iodine vapor.

February 27, 1915.

Treatment of Gangrene, by L. Ombrédanne.—Early treatment and extensive exposure of deeper tissues are recommended in this condition. Ether proved by far the most efficient agent in overcoming the infection responsible for the gangrene. The wound having been well opened up, cleansed, and dried, Ombrédanne irrigates it with ether. In perforating bullet tracks he passes through a loose compress of gauze moistened with ether, with large ether compresses at either of its extremities. Where the skin shows special gangrenous involvement a series of incisions parallel to the axis of the limb are made two fingerbreadths apart, the bridges of skin thus loosened raised, and compresses streaming with ether passed under them, together with flat compresses applied in external contact over the affected region. Some impervious material, previously spread over a layer of sterile cotton, is at once placed over the ether dressing and a roller bandage applied. The dressing is renewed morning and evening for three or four days, from fifty to 100 grams of ether being used each time. Some slight pain is experienced in the first hour. The ether

causes rapid arrest of the gangrenous process, though an unusual amount of ordinary purulent discharge is excited. After three to five days the use of ether is discontinued and large wet dressings of twenty per cent. alcohol substituted. Since using ether the author has not had to amputate for gangrene in any instance. (See JOURNAL for March 13th, page 530.)

RIFORMA MEDICA.

March 20, 1915.

Radium Treatment of Carcinoma of the Rectum, by C. Pellizzari.—In a case of cylindrical adenocarcinoma of the rectum treated by radium, the patient, a man aged fifty-seven years, was considered inoperable, being cachectic, dropsical, and febrile. Radium applications were begun in April, 1913, with twenty, and later, thirty mgm. of radium bromide. This resulted in noteworthy diminution of the size of the tumor, a return of regular intestinal function and an increase of twelve kilograms in weight. During the year following, a second series of applications was made in conjunction with twenty-four intravenous injections of enzitol. At present the patient has only a slight tumor on the intestinal wall which microscopically shows only a few traces of neoplastic infiltration.

Functional Hemispasm, by C. Ciuffini.—Hemispasm in general may be divided into four groups: Spasm of the seventh or of the twelfth cranial nerves, or of the cervical plexus, or lastly, of the brachial plexus. A case is reported of clonic hemispasm of the left side of the neck and lips of an hysterical nature. In spite of treatment this condition has persisted for two years with occasional periods of improvements. In this case apparently the irritation invaded the nuclei of the facial nerves and the anterior horn of the upper part of the cervical cord.

Acute Renal Insufficiency, by R. Mosti.—A man aged twenty-five years was thrown from a train, sustaining fracture of the third, fourth, fifth, and sixth right ribs in the posterior axillary line and a severe contusion of the lumbar region. There was no sign of injury to the lung, the pleura, or the kidney. On the third day the man manifested a typical peritonitis with abdominal tenderness, rigidity, distention, even the Hippocratic facies. His state became gradually worse and death ensued on the following day. Autopsy showed that the cause of death, and the only serious pathological condition, was a hemorrhagic distention of the right suprarenal capsule. Only four cases were found in the literature.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

March 28, 1915.

Embryotoxon or Congenital Marginal Opacity of Cornea, by J. Gonzalez.—The rarity of this condition is shown by the fact that it is not mentioned in the statistics of Mansilla, which include fifty thousand eye cases. Embryotoxon, which is an anomaly of conformation occurring congenitally, resembles arcus senilis. The cause is attributed to infiltration of the corneal margins, the nature of which, however, has never been explained. It has been thought to be the result of ulcerative processes during intrauterine life. A more reasonable theory is that it is the result of derangement of develop-

ment of the tissues rather than of fetal disease. A disturbance of the circulation or an anomaly in the distribution of bloodvessels might produce capillary atrophy and consequently an opacity of the corneal margin.

BRITISH MEDICAL JOURNAL.

April 3, 1915.

Autogenous Living Vaccine in the Treatment of Enteric Fever, by E. A. Bourke, Idris D. Evans, and Sydney Rowland.—Upon the favorable results obtained in the treatment of typhoid fever with the usual vaccine of killed organisms, the authors sought to obtain even better results by the use of autogenous living vaccines in such cases. The vaccine consisted of fresh broth cultures of living typhoid bacilli isolated from the blood of the patient and used when about eighteen hours old. The doses ranged from sixty million to 300 million organisms. Very slight local reaction followed the injections, less than after the ordinary prophylactic inoculations. The general reaction was, however, very marked, there always being an acute rise of temperature and often profuse sweating. The injections were made subcutaneously and the doses used seemed perfectly safe. Following the sharp rise of temperature there was usually a fall within twenty-four hours after the inoculation. The injections were followed by definite beneficial effects upon the patient and tended to shorten the course of the disease materially. The improvement in the patient's mental condition after the injections was particularly noticeable. The reports of six cases are given in abbreviated form.

Treatment of Dry Pleurisy by Temporary Partial Artificial Pneumothorax, by Geoffrey Lucas.—A patient suffered from long persisting, painful dry pleurisy, which was not influenced by ordinary measures. After due trial of the usual means of relieving the pain, 200 c. c. of nitrogen was introduced into the affected pleural sac, but failed to relieve the pain. Two days later 300 c. c. were injected with distinct relief of the pain and the disappearance of the friction rub. Upon very deep inspiration, however, some pain was still felt. Five days after the second injection a third was given, introducing another 300 c. c. of nitrogen. This entirely removed all pain, even after very deep respiration. The injections did not affect either the patient's temperature or pulse rate, and there was never any evidence of fluid in the pleural cavity. Complete cure resulted from these three nitrogen injections. Lucas suggests the wider application of this procedure in obstinate cases of dry pleurisy, and believes the mode of action to be merely one of splinting of the affected lung with the separation of the two inflamed pleural surfaces, both of which conditions promote healing.

LANCET.

April 3, 1915.

Tampon for Controlling a Severed Intercostal Artery, by John Furse McMillan.—The device consists of a small fusiform india rubber sac which could be inserted between the ribs and then filled with water from a suitable syringe attached to its neck. Then by means of tapes attached to the neck of the tampon it should be drawn outward to compress the severed artery between itself and the rib.

McMillan also suggests that this same device could be used for the ready control of arterial hemorrhage in any locality in which it might be possible to compress the vessel between it and a bone surface such as the femoral artery in Hunter's canal, the brachial, subclavian, facial, popliteal, and palmar arteries. For this purpose the rubber sac could readily be attached to the head of a suitable needle which could be passed through the tissues of the part in such a way as to permit the tampon's being drawn firmly against the vessel so as to compress it against bone.

Heterologous Transplantation of Mouse Tumors in Rats, by W. E. Bullock.—Attention is called to the fact that, although the cells of a tumor derived from one species of animal will live for a short time when transplanted into an animal of a different species, they will not multiply with tumor formation. The experiments of Rywosch are also cited in which he succeeded in obtaining growth of either rat or mouse tumors in the tissues of chick embryos. On the strength of these observations, Bullock successfully transplanted several types of mouse tumors into young rats within twenty-four hours after their birth and observed their growth for periods of over seventeen days. He also found that older rats, up to half mature animals, would also grow mouse tumors for about the same length of time. At the end of this period of growth the tumors began to recede, ultimately to disappear, leaving the animals quite immune to subsequent inoculation of the same tumors. These observations are explained upon either of two hypotheses: First, that the tissues of very young animals do not contain those substances present in older animals which antagonize the growth of heterologous tumors; second, that the cells of the young animals are incapable of producing immune bodies promptly enough to prevent the growth of the implanted tumors, as is the case with the older animals.

Pneumococcal Infections Treated with Autogenous Vaccines, by Nathan Raw.—In the last five years the author has treated 310 cases of pneumonia with vaccine, with a mortality of thirteen per cent. No unfavorable effects have been observed to follow the use of the vaccine irrespective of the size of the dose used. The vaccine should be prepared from the blood or sputum of the patient to be effective, and this can be accomplished readily. Three cases are here reported, all of extremely severe pneumococcal septicemia and pyemia following attacks of lobar pneumonia. In all three the course of the case was progressively downward until the administration of autogenous pneumococcus vaccine, in doses of 100 million organisms, was begun. In all this use of vaccine turned the tide and led to final complete recovery. It is to be understood that existing abscesses were also treated surgically by drainage, except a lung abscess in one of the cases.

JOURNAL OF TROPICAL MEDICINE AND HYGIENE

March 15, 1915.

Internal Treatment of Yaws, by Aldo Castellani.—Where the specific remedy, salvarsan or neo-salvarsan, cannot be given, the following mixture was found most effective, especially in recent cases: Tartar emetic, one grain; sodium salicylate, ten grains; potassium iodide, one dram; sodium bicarbonate, fifteen grains, in one ounce of water. To

adults and youths over fourteen years of age three such doses are given daily, diluted in four volumes of water. To children between eight and fourteen years half doses are given, and to younger children, one third or less. The active drugs in the mixture are potassium iodide and the antimonial compound. The salicylate had been previously observed by Castellani to hasten disappearance of the crusts. The sodium bicarbonate appeared largely to prevent the symptoms of iodism and to decrease the emetic properties of the mixture. The latter was given in the doses mentioned for two ten to fifteen day periods, with an intervening rest period of five to ten days. In recent cases and those of but three to twelve months' standing the results were very satisfactory, as shown in accompanying illustrations, but in old cases the effects were not comparable with those of salvarsan.

Bronchial Spirochetosis, by J. W. Scott Macfie.—Two cases are reported, in the first of which the temperature rose to 104.5° F., then fluctuated for four weeks in a manner suggestive of early tuberculosis. Definite signs of pneumonia were at first present. When creosote treatment was finally begun, the temperature fell to normal in a few days. The sputum was yellowish, and contained numerous spirochetes, but no pneumococci or tubercle bacilli. The second case ran a more acute and shorter course; the sputum, rich in spirochetes, was slightly rusty on the second day, later yellowish and nummular. The spirochetes, to which Macfie ascribes the symptoms, averaged eight to nine microns in length, with three or four coils and tapering extremities. Organisms indistinguishable from them were found to occur normally in the mouths of healthy individuals, and it is suggested that the bronchial and pulmonary condition resulted from invasion of the bronchi and lungs by these organisms from the mouth as the result of some unknown predisposing factor.

PRACTITIONER.

March, 1915.

Injection Treatment of Hemorrhoids, by F. Swinford Edwards, P. Lockhart-Mummery, James Eadie, Rollin H. Barnes, Ivor Back, and James F. Goodhart.—With the exception of Barnes, who looks upon the injection treatment as a step backward, though admitting his own inexperience, all of these writers seem to agree that in cases of reducible internal hemorrhoids, not complicated by external tags, fissure, fistula, or inflammation, the operation of choice is injection. Eadie says he would choose it for himself. Time is saved, no anesthetic is needed, the treatment is painless, immediate relief is given, and the risk of complications is slight in skilled hands. But the injection treatment is absolutely contraindicated when the piles are strangulated, sloughing, or irreducible, and when they are complicated by fissure, fistula, or ulcer. Back believes that about forty per cent. of proper cases are cured by the first injection, while recurrence takes place within a few years in the remainder. Three quarters of these are cured by reinjection, while a permanent cure cannot be obtained in this way in about fifteen per cent.

Incipient Pulmonary Tuberculosis in Children, by D. B. Lees.—For examination of the front of the

chest the patient should lie on his back, perfectly at ease, on a comfortable couch; for examination of the back of the chest he should be in a sitting, slightly stooping posture, with his hands on the front of his opposite shoulders, the elbows together, and the muscles relaxed. The physician should press firmly with the terminal phalanx of a finger of his left hand on the spot to be examined, keeping all the rest of his hand and arm away from the patient's chest wall, then percuss lightly with a finger of his right hand and measure in finger breadths the diameter of the dull areas. Examination of the front of the chest when the patient is standing inevitably leads to false conclusions. A typical series of dull pulmonary areas can be found, for the most part symmetrically placed in the two lungs, when no bacilli can be found in the sputum, and at an early stage, when the symptoms are suggestive, but not conclusive as to tuberculosis, they may establish the diagnosis. Simple collapse of the lung, which is common in young children, is irregular in distribution and not arranged in the pattern characteristic of tuberculosis. Bronchopneumonia, not of tuberculous origin, affects mainly the lower parts of the lungs. In the early stage of pulmonary tuberculosis the entry of air is defective over the dull areas, but there may be no morbid sounds, a fact that is likely to cause error in diagnosis. This may be true even at a late stage of the disease.

Common Errors in Diagnosis, by Adolphe Abrahams.—Mistakes may be classified as follows: Mistakes in manner or tact; mistakes due to ignorance; errors of judgment; obsessions; failure to think anatomically; failure to think at all; a reluctance to accept responsibility; incomplete examination; inherent difficulties in the case.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

April 10, 1915.

Schick Reaction; Report of Eight Hundred Cases, by H. N. Bundesen.—For the carrying out of this test it is essential to have an accurate one c. c. all glass hypodermic syringe, provided with a scale divided into ten parts, and a short, sharp, fine platinum iridium needle. The skin of the flexor surface of the upper third of the forearm is cleansed with tincture of green soap and ninety-five per cent. alcohol; after which a small portion of the skin is pinched up with the thumb and first finger of the left hand, and the needle is carefully inserted into, but not through the skin in such a way that the opening in the point of the needle is covered and that the needle can be seen beneath the superficial layer. With pressure directed upward, there is injected a dilution of a fresh diphtheria toxin of such a strength that 0.1 c. c. contains one fiftieth of the minimum lethal dose for a 250 gm. guineapig. The result is seen at the end of twenty-four hours. If antitoxin is absent or present to only a small amount—insufficient for protection, there appears a positive reaction, which is characterized by a constantly increasing area of redness (halo) and induration of from ten to twenty-five mm., the maximum of which is reached in forty-eight hours. By means of the Schick test we are in a position to tell definitely who is susceptible to diphtheria, and, when an epidemic occurs, need inject only individuals reacting to it;

paying no attention to those giving a negative reaction. By it the danger of cross infection is greatly reduced; children with diphtheria who have had scarlet fever, and are therefore immune from such fever, can be placed in scarlet fever wards when the inmates show a negative Schick reaction, etc. It permits a great reduction in antotoxin bills, while much needless pain and annoyance of patients is avoided, and the possibility of anaphylactic shock is greatly minimized. (See this JOURNAL for February 6, 1915, page 258.)

Flat Foot, by R. W. Lovett.—Under unfavorable conditions of weight bearing, the structure of the foot is so changed that the arch is lowered by the relaxation of ligaments and muscles; pain results from this malposition. While real flat foot, of course, exists, the use of the term ought to be restricted to feet which are really flat and which touch the ground where the arch should be, a matter which the most casual examination can detect. These flat feet may be rigid and resist correction, or in the nonweight bearing position may return to a certain extent, the former being rigid flat foot and the latter flexible flat foot. Flat feet, however, are not necessarily painful feet, but often are very serviceable. The conclusion reached from the examination of the feet of 800 nurses in the training school and from hundreds of cases in private practice, is that the static foot troubles ordinarily described as flat foot, pronated foot, weak foot, etc., cannot be traced to any particular type or structure of foot: hence the pain and disability cannot be attributed to the lowering of the arch, but are due to strain of the muscles and ligaments. Moreover, some degree of synovitis may arise in the tarsal joints. All this has an important bearing on diagnosis, for many patients are left to suffer from foot strain because the physician can detect no lowering of the arch, and, on the prevalent theory, is naturally unwilling to diagnose any static trouble with the foot. The author summarizes as follows: Any foot may become painful from foot strain, without any change in the height of the arch, under unfavorable general conditions, ill health, etc. Boots are a predisposing factor, not only by cramping the foot, but especially by not affording adequate support to the sole; hence persons with high arches are quite as liable to foot strain as those with low arches, if not more so. When foot strain occurs, it is desirable to rest the tired structures by support, most often a metal plate. Exercises in acute cases and the use of a flexible shoe do harm rather than good. The final heresy consists in the belief that painful feet are oftener helped by raising the heels than by lowering them.

Pituitary Extract in Obstetrics, by J. K. Quigley.—Pituitary extract is the most powerful stimulant to uterine contraction yet discovered. Its greatest value is its use in uterine inertia; the ideal time for its exhibition is in the second stage, although benefit follows its employment earlier; here it is usually necessary to repeat. No untoward results, such as post partum hemorrhage or asphyxia, were noted for mother or child in a series of fifty cases. It shortens the third stage; it renders catheterization post partum almost never necessary; it has no place in the normal case. Preparations for

delivery should be made at the time of the injection, such as sterilizing hands and gloves; the facilities for giving an anesthetic at a moment's notice are requisite, for we do not know the susceptibility of the uterine muscle in any particular case. Pituitary extract may advantageously be supplemented by semimarcosis when the presenting part is on the perineum. It must always be used judiciously and with due appreciation of the possible dangers of so powerful a uterine stimulant. This is the most important point; the contraindication, first and last, is obstruction.

MEDICAL RECORD.

April 10, 1915.

Treatment of Diabetes mellitus in Dispensaries, by H. O. Mosenthal.—On account of the time required to obtain therapeutic results, the treatment of diabetes in dispensary practice is unsatisfactory; to obviate this difficulty the following scheme was worked out at the Vanderbilt Clinic, New York, with profit. Three main objects were kept in mind: 1. The special education of physicians in a knowledge of the disease. 2. Provision for adequate statistical and teaching material. This need applies more to university clinics than to the outpatient departments of hospitals. 3. The adequate treatment of patients. This is the keystone upon which the success of the clinic rests. Each patient must be required to attend by appointment only. If there are four physicians, and each can handle approximately four patients in two hours, it would be feasible to allow for twelve visits of old cases and leave one assistant free to interview the new patients. When the clinic is running to its full capacity new cases should be refused admission, as in an overcrowded clinic either quantity or quality of therapy must suffer. In the metabolism division of the Vanderbilt Clinic there was frequently a waiting list, but though this was unfortunate, it tended toward the greatest good of the greatest number. A patient, on admission, has his history and physical examination charted on a suitable blank. These history blanks are complete, and present the facts in a definite order, and thus through them statistics concerning heredity, etiology, etc., may be obtained with a minimum effort. The separate visits of the patient also are rendered more interesting to the physician, as any desired details may be rapidly ascertained without the usual series of wearisome questions. The diet lists employed are like those generally accepted, and the principles guiding their use are such as those set down in recent treatises on diabetes. The restricted protein diet has presented insurmountable difficulties, and, so far, no feasible plan has been devised by which a diet requiring weighing can be successfully maintained by dispensary patients. The diet usually consists of the starch free list, with some extra starchy food. Each case is treated individually, and allowances are made for acidosis, idiosyncrasies, and personal preferences, and the dietary directions varied as indicated. The patient is told how to collect and measure a twenty-four hour specimen of urine, is given a slip on which to record all food and fluid taken during the period of collecting the urine, and is told on what day to return. The urinary analyses are best made before the patients themselves, as this

is of great assistance in winning their confidence, and it also saves the doctor's time by enabling him to do all his work within a short radius of space and to talk with the patient while he is working.

Scopolamine-Narcophin Anesthesia (Twilight Sleep) in Labor, by K. E. Schloessing.—This form of anesthesia, when applied in the right way, has no dangers for mother or child. It can be employed not only in the hospital, but in any well appointed residence; though it demands constant observation on the part of a skilled obstetrician who must be thoroughly familiar with the technic. The method scarcely prolongs labor, while it helps the woman through her ordeal by actually lessening the pains considerably and blotting them completely from her memory. With it, operative confinements, as well as perineal lacerations, are more rare. Disadvantages connected with it are the occasional restlessness of the patient and the occasional, though harmless, oligopnea of the child. As this method frees women from the dreaded labor pains, the knowledge of such freedom saves the patient from months of anxiety and fear, and enables her to face her hour of trial less nervously. It is hoped that through it at least one factor in causing race suicide, the dread of pain in parturition, will lose much of its force.

Nonbacterial Urethritis, by P. I. Dixon.—While in the vast majority of cases of purulent urethritis the gonococcus is the causative organism, in exceptional instances other pyogenic organisms are the infecting agents. In exceptional instances also we meet with traumatic urethritis from instrumentation and irritative urethritis following the ingestion of certain drugs. It is likewise fairly well established that venereal contact may be followed by a urethral discharge in the pus of which neither the gonococcus nor other bacteria can be demonstrated. There is still another small group of cases which present another type of purulent urethritis, namely, that following prophylactic or curative injections into the urethra. While the term nonbacterial urethritis has been selected to designate this type, chemical or irritative urethritis would perhaps be more appropriate, as cultures were not made from the discharge in the cases encountered. From its rarity it would seem reasonable to suppose that the affection occurs only in those who have an abnormally irritable or non-resistant urethral mucosa, or possibly an idiosyncrasy to the drug used. The diagnosis is of no little importance, since the treatment is totally different from that advisable in true gonorrhea—on the one hand, it is aggressive and persistent, locally and generally; on the other it is entirely negative. The importance of diagnosis is to be emphasized, also, in cases where the moral status of an individual might be affected by proving the specificity or nonspecificity of a urethral discharge.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

April, 1915.

Histogenesis of Cancer of the Stomach, by W. C. MacCarty.—It is generally thought that gastric carcinoma arises from postnatal epithelial rests which are supposed to be present either in the scar tissue bases or the submucosa of gastric ulcers. As this idea is theoretical, the author takes occasion

to present certain facts observed by him in an original series of investigations, and these facts go to show that the gastric cancer cell arises from intra-glandular hyperplastic cells of the mucosa, and represents a malignant end stage of a process of hyperplasia of thermal cells.

Perforated Gastric and Duodenal Ulcer, by G. G. Ross.—In the whole field of surgery there is no condition in which more depends upon prompt diagnosis and immediate intervention. Of the actual diagnostic points when a perforation has occurred one has to consider: 1. The history of acute pain; 2, the presence of marked rigidity of the recti, especially above; 3, the evidences in the patient's general condition that he is seriously ill. The differential diagnosis of perforated ulcer is not, as a rule, difficult. There are many conditions in which errors have occurred, yet undoubtedly not often justifiably so. Because of the severe epigastric pain often present in appendicitis, this is the incorrect diagnosis most often made. Again, if fluid drains from a duodenal ulcer into and through the right kidney pouch, tenderness and rigidity may be marked in the right iliac fossa; but the history and the other symptoms should soon make the diagnosis clear. In intestinal obstruction of sudden onset the rigidity and inflammatory signs would be absent. A ruptured gallbladder would give identical symptoms, but the condition is rare, and particularly so without a history of trauma or of infectious cholecystitis of some standing. In acute pancreatitis the symptom complex and subsequent developments are very definite; here the slow pulse, low temperature range, and evidence of involvement of the lesser peritoneal cavity only, afford the clue. When late complications set in after the perforation of an ulcer the symptoms may be similar to those of the same complications due to other causes, and a differentiation may be possible only in the presence of a definite history. The diagnosis of perforation having been made, surgical intervention is called for at the earliest possible moment; delay is fatal.

Paroxysmal Tachycardia; Treatment, by W. L. Niles.—In auricular fibrillation the only drugs of value are the digitalis bodies, and it is in this condition that their best effects are seen. In auricular flutter, also, Lewis and Ritchie recommend digitalis, each reporting instances in which the normal rhythm was restored by its use. The return to this was often preceded by a short period of auricular fibrillation, and inasmuch as the mechanism of paroxysmal tachycardia is somewhat similar to the latter, and almost exactly like that of auricular flutter, one might well expect benefit from the use of digitalis in regular tachycardia. In the case reported good results were obtained from the administration of strophanthin, the pharmacological action of which is the same as that of digitalis. Strophanthin has many advantages in an urgent state of prolonged tachycardia with a dilating heart—ease of administration by intramuscular injection, which insures rapid absorption, and hence prompt effect. It is a powerful, and sometimes dangerous, drug, but often it should be repeated more frequently than is generally done; that is, until a satisfactory effect is secured, such as is obtained after several days of digitalis administration by the mouth. The patient must,

however, be watched carefully for indications of severe poisoning, especially a high grade of heart block, though this can be released by atropine.

Effects of Exercise on the Normal and Pathological Heart, by C. S. Williamson.—Owing to the great apparent variation in the size of the heart due to different heights of the diaphragm, any method which does not enable us to fix the exact position of the latter, and thus to be sure that its height before and after exercise is the same, is valueless. The teleröntgen method, which was employed in this investigation, offers a highly accurate and perfectly objective means of determining the size of the heart, eliminating completely any possible error resulting from varying heights of the diaphragm. The results of the series of experiments show that: 1. The normal heart responds to any exercise within its power by a diminution in size; 2, about one half of the pathological hearts—which are in a condition of good compensation—respond to exercise within their power, with a diminution in size; 3, approximately one half of the pathological hearts—with manifest but low grade broken compensation—respond in the same manner by some degree of diminution in size. In only the most exceptional instances are the differences in size due to acute dilatation sufficient to be determined by even the most refined percussion. Under the technic employed in this research, Röntgen ray examination of the heart, made before and after appropriate exercise, is capable of rendering valuable assistance in the estimation of the functional efficiency.

ARCHIVES OF INTERNAL MEDICINE.

March, 1915.

Effect of Anesthesia and Operation on the Renal Function, by Richard H. Miller and Hugh Cabot.—The phenolsulphonephthalein test of Rowntree and Geraghty was employed in 422 cases—patients for the most part with normal kidneys—to ascertain the influence of anesthesia and operation on renal capacity. The drug was injected at varying intervals after anesthesia in separate groups of cases. After operations under ether a decrease in phenolsulphonephthalein excretion was noted; this decrease was greater in laparotomies than in the average of cases, and was considerably greater in cancer cases. It also varied in proportion to the amount of ether used, the length of the operation, and inversely with the length of time elapsing between the operation and the performance of the test. In twenty-four to forty-eight hours, the excretion of the drug nearly returned to normal. Certain cases showed either no decrease or an increase in excretion, without discoverable reason, while others showed an almost total arrest of excretion. Shock and greatly impaired vitality favored a marked decrease in drug excretion. After spinal and local anesthesia, the decrease was less than after ether anesthesia.

Causes of Symptoms and Death in Intestinal Obstruction, by F. T. Murphy and Barney Brooks.—Experiments in dogs are reported. Among the facts ascertained were, that the bacterial toxins responsible are not specific for any part of the intestine and may be formed in the gallbladder; the

toxin may enter the circulation through the thoracic duct; interference with circulation in the obstructed intestine is an essential factor in systemic absorption of the toxin which does not pass through the normal mucosa. As regards surgical treatment, that part of the bowel, of which the mucosa is so damaged as to permit of abnormal absorption, should be resected rather than drained.

Strychnine and Caffeine as Cardiovascular Stimulants in the Acute Infectious Diseases, by L. H. Newburgh.—No evidence was found, in a review of earlier investigations and observations, that the vasomotor apparatus is injured in acute infectious diseases. The hypothesis that the heart may be fatally injured in these infections is considered still tenable. In the author's clinical tests strychnine failed to increase the cardiac output, slow the pulse, or materially raise the blood pressure; nor did caffeine sodiosalicylate slow the pulse or raise the pressure.

JOURNAL OF MEDICAL RESEARCH.

March, 1915.

Arteritis syphilitica obliterans, by Darling and Clark.—Large vessels may be involved and yet cause but little disturbance because of the extensive collateral circulation. In one case there was complete obliteration of the abdominal aorta, while in others the important condition was obliteration of the left common carotid. The macroscopical and microscopical appearances were like syphilitic lesions elsewhere in large bloodvessels. Syphilis was probably the starting point.

Lipase Studies: Experimental Chloroform Narcosis of the Liver, by Quinan.—Chloroform causes a loss of the lipolytic ferment to a very great degree. As long as the loss is less than thirty per cent. necrosis does not appear. When, however, the loss of the lipolytic ferment amounts to about thirty per cent. central necrosis appears.

Incidence of Spontaneous Cancer in Mice, by Slye.—The infectiousness of cancer is a question. In the long series of experiments carried through, it is evident that the tendency to cancer is like any Mendelian recessive. It follows the laws of heredity with an inevitableness which makes it a character that can be cultivated. It can be bred into and out of strains at will. It can be put into a strain where it has never existed before, and it can be drawn out in extracted lines which can produce nothing else, and which in turn will carry cancer into any line with which they are hybridized, or it can be bred out of a line one side of which originally carried one hundred per cent. of cancer. That it is not infectious is indicated by the fact that although bedbugs and cockroaches have passed from one cage to another there has never been a single case of the transmission of cancer. All the evidence points to the inheritance, not of cancer as such, but of a tendency.

SURGERY, GYNECOLOGY AND OBSTETRICS.

February, 1915.

Treatment of Osteomyelitis, by C. C. Simmons.—If children have pain in a limb and evidence of toxemia, always consider osteomyelitis. Early operation, even if the symptoms are rather vague, is the

thing. If the diagnosis is incorrect practically no harm is done; while if correct a great deal of suffering may be avoided. In acute cases it is well to open the medulla and pack the wounds. Prognosis is good. The treatment and prognosis vary in these early cases, but in general the earlier the operation the better the prognosis. In cases where bone destruction has taken place, seen less than three months after the onset of the disease, subperiosteal resection should be performed when possible. In these circumstances the prognosis is good. In chronic cases of bone abscesses of less than one year's duration, it is necessary to drain and pack. In chronic cases with bone destruction of less than one year's duration, the sequestrum should be removed. In old chronic cases, either with bone destruction or of the bone abscess type, necrotic areas are removed and drained, obliterating the cavity with flaps of living tissue. If this cannot be done, bone wax, packing, or sterilization of the cavity is employed; the cavity fills with blood clot and is closed without drainage. The prognosis, if the cavity can be obliterated, is fair, otherwise poor. The treatment when such bones as the pelvis are involved is unsatisfactory and the prognosis problematical. When in old chronic cases the whole shaft of a long bone is badly diseased, the possibility of resection of the entire shaft with bone transplantation should be considered before amputation.

Acute Hemorrhagic Pancreatitis, by William Linder.—Positive diagnosis of acute hemorrhagic pancreatitis cannot be made with absolute certainty, since there is still lacking a distinct pathognomonic sign for this disease. Laboratory aids, such as the Camidge reaction and the Wohlgemuth diastase blood test are of no value in this condition. A tentative or probable diagnosis can be made in a certain number of cases, provided that a careful history is obtainable and the various phenomena, as they present themselves, are properly interpreted. The most striking feature of this condition, clinically, is the evidence of peritoneal disturbance in the upper abdomen, the so called acute abdomen which all surgeons agree is an indication for surgical interference. An acute hemorrhagic pancreatitis should always be borne in mind in such cases. Finding the peculiar odorless, serosanguineous fluid and the small flecks of fat necrosis, is direct and undoubted evidence of acute hemorrhagic pancreatitis. The best results are obtained in cases in which operation precedes the stage of necrosis or pus formation. Hence, early surgical intervention in all such cases will be rewarded by more frequent recoveries. The writer's personal observation of the intense cyanosis of the distended small intestines, with the peculiar granular or gritty feel of the thickened great omentum, has helped him in many cases to recognize the condition at operation, and look to the pancreas at once as the cause of the trouble. This is of special value in cases operated in for supposed intestinal obstruction. When the abdomen is opened, the condition should be looked for and recognized quickly. Then prompt and efficient drainage should be instituted, causing the patient as little shock as is compatible with good surgical technic. The high median incision is the best one to use, because it is the most favorable for exploratory purposes. The lumbar in-

cision has its indications, but is only rarely resorted to, and then usually in late cases when abscess is pointing in the lumbar region. Postoperative hemorrhage is not an infrequent cause of death. It is due to necrosis, usually occurring in late cases. Therefore, early operation and gentle manipulation is the prophylactic treatment for this unfortunate complication.

Weak Feet, by W. B. Owen.—Weak foot occurs more frequently in females than in males, and in most instances is caused by the wearing of improper shoes. The diagnostic symptom is pain when standing or walking, which is relieved by rest. As a prophylactic measure, normal individuals should be taught to walk with the feet parallel. Abducted feet should be forced to acquire a normal attitude by a fulcrum at the calcaneoastragaloid joint. All weak feet are amenable to treatment by mechanical or operative measures and proper exercise, with application of appropriate shoes. All mechanical support should be withdrawn as soon as muscular power has been sufficiently developed.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, December 21, 1914.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

(Concluded from page 546.)

Treatment and Prophylaxis of Whooping Cough, Based on the Bordet-Gengou Etiology.—This paper, by Dr. PAUL LUTTINGER, will be published in the JOURNAL.

Dr. E. MATHER SILL's experience with the vaccine had been limited to sixty or seventy cases; in the matter of prophylaxis it would be of greatest value. As a prophylactic he had employed it in only ten cases, but in none had the disease developed. In treating whooping cough, he had not, in the beginning, paid so much attention to the age of the child as to the frequency and severity of the paroxysms. His doses were from 50,000,000 to 100,000,000; so that the young infants received a proportionately larger dose than older children, and it seemed to him that he obtained better results in these cases. The average time for a cure in his cases, after vaccine treatment was begun, had been from three to four weeks. He did not consider the vaccine a specific for the disease, but it was a great addition to their armamentarium in its treatment; in many cases diminishing the severity of the paroxysms and shortening the course of the disease to a greater extent than was possible with drugs.

Dr. ALFRED F. HESS, about a year ago, had had experience with the vaccine both as a prophylactic and a curative. The cases cited by Doctor Luttinger were ambulatory cases. The great advantage which he himself had had was that his cases occurred in an epidemic in an infant asylum, and were not ambulatory. He was thus enabled to have complete control of the cases to the end. Another advantage was that in all probability, all the cases

were due to the same type of bacillus. In the third place, no other medication was employed, while the conditions as to food, care, etc., were the same for all the children. Fourth, it was possible to know just when the disease began, the very first day. Four different vaccines were employed, one of them being autogenous. In all, eighty-five children were treated, from one to five years in age. The vaccine treatment was begun early—sometimes on the second or third day—and two or three doses, of from 100,000,000 to 200,000,000, were usually given. It was not observed that the vaccine appreciably lessened the paroxysms either in number or violence. The epidemic was not particularly severe. There were altogether 400 children in the institution, and the vaccine was administered prophylactically to 244 of them—in every instance before there was any sign of the disease. Of the 244, twenty developed the disease. This seemed a fair result. It was scarcely to be expected that the vaccine would be of value as a curative, for in no disease was vaccine of much service in the actual treatment.

Dr. W. MORGAN HARTSHORN said that, up to the present, the vaccine had not been of much service except as a prophylactic. At the Roosevelt outpatient clinic it had been employed first in seventeen cases. In six it was possibly curative, the patients recovering within six weeks, and in one immediate improvement was noted. In six cases there was no improvement. The results were not conclusive. Last summer, in a second series of cases treated with the vaccine, five could be said to be cured, four were improved, and three were not improved. As to these results it was necessary to depend on the word of the mothers. In consequence of their generally unsatisfactory character, vaccines had now been given up at the clinic. It was undoubtedly of value as a prophylactic, but its curative efficacy was very slight. It had not as yet been proved that the Bordet-Gengou bacillus was the causative agent in pertussis, and there were other microorganisms which might be concerned. Therefore, when administering Bordet-Gengou vaccine they were giving something uncertain. With an autogenous vaccine, however, they might combat the causative organisms, whatever these might be. The cases he had treated with drugs were always improved or cured inside the six weeks' limit which had been fixed upon at the clinic.

Doctor LUTTINGER said it was not to be expected that results could be obtained from a vaccine equal to those observed from the use of a serum such as diphtheria antitoxin. Still, the reason why better success had not been met with was that they had not given sufficiently large doses. Thus, it had been mentioned by Doctor Sill that in the younger patients, who received proportionately larger doses, the vaccine seemed to have more effect. At the whooping cough clinic it was customary to begin with a dose of 250,000,000, and in many instances with as much as 500,000,000; results appeared to depend upon the size of the dose. As to Doctor Hess's cases, it ought to be taken into consideration that the children in infant asylums, as a rule, did not have as much resistance as others—did not form antibodies so readily. If Doctor Hartshorn would reconsider his determination to abandon the use of

the vaccine, and would now begin to give larger doses, he might get better results. All that he had maintained was that the vaccine treatment gave better results than drug treatment, and the results which had been obtained at the clinic had shown that the vaccine favorably modified the paroxysms, shortened the attack, and diminished mortality.

Stated Meeting, February 15, 1915.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

The Nagelschmidt Modification of the Kromayer Quartz Lamp in the Treatment of Diseases of the Scalp.—Dr. RICHARD W. MÜLLER explained the mechanism of this lamp and gave a demonstration of its working. He said its effect was particularly marked in alopecia, in which no previous method of treatment had ever proved of any avail. Nagelschmidt had reported the most remarkable results, and during a two months' stay in Berlin, he had had the opportunity of seeing many cases successfully treated at the clinic. Personally, he had also met with the most satisfactory results from the use of the lamp, and he purposed to publish the details of his series of cases.

Organotherapy in Chronic Disease, with Special Reference to Its Possibilities in Cancer.—Dr. HENRY R. HARROWER, after having referred to the difficult and unsatisfactory character of the treatment of chronic disease, said there seemed to be fashions in medicine, as in other matters, and there were indications that it was now getting to be the fashion to study and write about the internal secretions. None could deny that the active principles of certain of the ductless glands exerted an equally powerful influence in the control of morbid and of normal phenomena: one had only to recall that of thyroid extract in myxedema, epinephrine in local hemorrhage, and pituitary extract in parturition, to realize that there were sufficient inducements to investigate further the activities of these and other organs known to be concerned in what was now termed the "hormone balance." He referred in turn to the successful use of pluriglandular therapy in neurasthenia, in the majority of cases of which there were evidences of a disturbed endocrinism, in functional neuroses and psychoses, and in the metabolic disturbances of women especially. One of the most neglected extracts was that of the mamma. Yet this was the direct antagonist of the ovaries, and mammary extracts might therefore be of value in the control of conditions such as menorrhagia, metrorrhagia, and uterine fibroids. In regard to cancer it might be premised that the following points had been established: 1. Cancer was a chronic intoxication; 2, its incidence evidenced the lack of an element in the blood which permitted cell proliferation at a point of particularly lowered resistance; 3, it was essentially a disease of senescence, or, as it had been expressed, "cell senilism." They knew that cellular activity was influenced by the hormones or chemical messengers, that nutrition responded in a greater or less degree to their influence, and that it was possible to favor the reaction of the body against disease by the administration of certain organic extracts. As regards cancer, the first question naturally suggesting itself

was, Was it possible to influence by means of organotherapy an unquestionably organic condition, when the action of the endocrinous principles was supposed to be upon function, rather than structure? Undoubtedly no form of internal medication at present known would destroy or remove the fundamental organic conditions pathognomonic of cancer, but it was entirely possible that the resistance of the cancer patient might be increased to such a degree that other measures employed might be reinforced by augmented responsiveness of the cells and a general enhancement of nutrition. As to why some individuals presented a special receptivity to the implantation and growth of cancer cells, and as to just how such cells become implanted, were matters which would eventually be found to be much more intimately concerned with the internal secretions than was at present supposed. Clinically, the one essential feature of cancer was waning cellular activity. Almost invariably nutrition was poor, and the patient past the prime of life, indicating that there might be a direct connection between these circumstances and certain endocrinous glands, the work of which ceased at this period; their action being no longer needed.

While it was perhaps too much to say that these organs were responsible for the condition of the body permitting the growth of cancer, or that by means of organotherapy they were likely to be able to control this disease, it seemed by no means impossible that future study would show that the hormones might be intimately concerned in the prevention and cure of cancer. If chronic cellular intoxication was an important factor in all cancer cases, obviously a part of the treatment must consist in favoring the activity of the known detoxicating organs, as well as removing all nests of further trouble, chiefly in the alimentary canal. The association of intestinal fermentation had often been observed in cancerous individuals, and had even formed the basis of certain theories as to the etiology of the disease. Again, one of the well known manifestations of the cancerous cachexia was achlorhydria and the resulting digestive disabilities, and for this reason he would advise, as a reasonable organotherapeutic measure in all cases of cancer, the attempt to reestablish the activities of the digestive glands by means of secretin. The absence in cancer of a certain element from the blood had been mentioned. Just what this missing element was had not been determined; it would probably be found to be produced by the endocrinous system, and, since the evidence already indicated that this was not an unreasonable premise, the therapeutic possibilities were materially increased; for they now knew that when there was a functional hypoendocrinism, or reduction in activity of the ductless glands, not only could the missing substance be replaced, but the semiactive organs might be stimulated by certain organic extracts, in accordance with Hallion's law of homostimulation. The spleen and thymus probably offered greater possibilities than many of the other glands, although eventually the optimum preparation would probably be a pluriglandular extract containing these and other synergists. Was it possible to employ the organic extracts as prophylactic agents? Perhaps,

though it was difficult to know how to begin, since patients with cancer often did not give an opportunity to investigate their trouble until the disease was established.

Dr. ROBERT T. MORRIS said there could be little doubt that the medicine of the coming century would be the medicine of "home rule." Empirical remedies would be done away with more and more, and they would depend upon the resources of the system itself. When they came to the question of selection of means for a given purpose, they would have to proceed slowly. In the realm of Nature there was found a series of reciprocal changes which extended throughout all matter and all combinations of matter, and how to solve all the problems with the poor little equations now at their disposal was indeed a difficult question. As to one of these organic extracts, pituitrin, it was found for a time that it did not accomplish all that was expected; but when administered intravenously it did its work rapidly and efficiently. This was shown in obstetric practice and in postoperative gastric dilatation, and the technic was therefore a matter of importance. In uterine fibromyoma thyroid extract had appeared to be curative. If Doctor Harrower could produce five well authenticated cases of cancer cured by organotherapy, the surgeons would refrain from operating in cases of this disease until Doctor Harrower had an opportunity to try gland extracts. In regard to the relation of the testes to neuroses and psychoses, everyone from Hippocrates to Freud had had something to say, and they now believed that in dementia præcox the lipoid cephalin had lost its oxygen carrying power because of injury from abnormal sex cell secretion. Doctor Harrower had referred to the hypothetical capacity of the spleen to maintain, by means of an internal secretion, the principal mineral elements of the blood in a colloid state—the so called colloidogenic function, and in Nature the interchangeability between colloids and crystalloids was exceedingly interesting. It was remarkable how jelly fish and other low organisms, which were without alimentary tracts, were able to maintain their activities simply by the absorption of colloids and crystalloids from sea water. The soft shell crab could in a few hours assume its hard mineral shell as the result of the absorption of calcium salts which had not previously been contained in its economy. If such elaborate processes were conducted under the guidance of hormones, they might well assume that application of hormones in a therapeutic way would require a knowledge of physiology which they had not yet attained.

Dr. WILLIAM SEAMAN BAINBRIDGE thought great praise should be accorded to those who had made and were making a special study of the internal secretions. No subject, however, was more full of pitfalls. At present the whole subject of organotherapy must be regarded as *sub judice*. What was still needed was more extended laboratory research, and the correlation of these findings with clinical work. He could not agree with Doctor Morris that five cases of cure of cancer would be a sufficient test of any method of treatment. Many illustrations could be cited of alleged cures of many times more

than five cases treated by reputable physicians and pronounced by them cured, by methods which further test proved to be totally inefficient. There seemed always to be within the ranks of reputable medicine hyperenthusiasts, who could see curative merits even in such remedies as the celebrated Mattei "electricities," the indisputable merits of which Mother Ballington Booth proclaimed upon her deathbed, yet which proved, upon analysis, to be nothing but distilled water and inert coloring matter. The entire subject under discussion called for "watchful waiting."

Dr. SIEGFRIED BLOCK said it was impossible for him to add anything of his own to what had been so well presented and so properly emphasized. From the neurological point of view they were getting away from old obscure terms, and each year far fewer cases were being diagnosed as functional disorders. The old term neurasthenia was a word used to express a condition with indefinite and multitudinous symptoms the best definition of which was that "the doctor could find no trouble and did not know the ailment present." When they realized that any chronic disease carried with it exhaustion neuroses to some degree, they knew that something was not being supplied to the economy in the way in which it was during health. This was the case in cancer, and the physical and mental wasting were as important as the growth itself. With the stoppage of the sex glands in the female, neurasthenic symptoms were met with. It made no difference whether this was by means of the menopause or of oophorectomy, cancer was likely to start up at this time. In certain persons there existed a predisposition to cancer, and in certain persons a predisposition to neurasthenia, and it was possible for both to be found in the same patient. The beginning of cancer was painless, and he had had at least one patient consult him for nervous symptoms, in complete ignorance of the cancer present; probably many others had had similar experiences, the nervous symptoms being the cause of the first visit to the physician. They should not be too enthusiastic in regard to organotherapy until more research work had been done. All cases which were not bacterial or not traumatic in origin were not necessarily glandular. Certain lymph glands had special functions to perform—for instance, the epitrochlears in syphilis and tuberculosis; possibly they manufactured a special antitoxin selective in character. Another curious fact was that the x ray at times arrested the growth of cancer and also put a stop to testicular power. Both these actions, however, were often only temporary. In actual experience he had seen only one case of cancer in which benefit had apparently resulted from the use of organic extracts. A woman who had been suffering for the past four years from a large carcinoma of the breast had been treated, in addition to the x ray, with thyroid, ovary, and thymus extracts, in doses of five grains each, for weeks at a time. Although during the past year there had been no improvement in her condition, she was at least very little worse. She was also getting much less morphine now. The growth had remained about the size of a baby's head, and the fact that the patient was still

living, while the progress of the disease had been so slow, seemed to point to a favorable influence exerted by the pluriglandular extracts. In no other cancer case had he observed any result at all. It might be of interest to mention that in tertiary syphilis with such conditions as scleroses of tracts of the cord, the results of the administration of thyroid and thymus extracts combined, five grains of each, were often surprising. In cancer, glycosuria was often met with, and, so far as he knew, no reason for this had been given. Perhaps some relation of the thyroid and the pancreas, or possibly the adrenals, might explain it. It was now generally acknowledged that the thyroid and pancreas were dependent upon one another for proper action.

Dr. SAMUEL G. TRACY desired to know whether any actual cures of cancer had been effected by means of these organic extracts; so far they had heard nothing but theory on the subject.

Doctor HARROWER said that Doctor Morris, with his studies of jellyfish and crabs, would add to their information on the subject of mineralization and demineralization. As to the efficacy of thyroid extract in certain cases of uterine fibroids, this might be explained by a temporary antagonism which undoubtedly existed between the thyroid and the ovaries, just as it did between the mammary glands and the ovaries. These fibroid growths were beginning to be regarded as an expression of hyperoprophism. The pitfalls of this subject to which Doctor Bainbridge had alluded were offset by the vistas of encouragement so frequently seen. Brown-Séquard, far from being a quack, had been one of the two men who had contributed most largely to their knowledge of the internal secretions and opotherapy. As to research work on this subject in laboratories, it was his opinion that at present this was valuable, but not so much needed as clinical work by practising physicians. As regards the matter of glycosuria in cancer, Little had found that cancer patients had hyperglycemia, but rarely glycosuria. Every case of coincident cancer and glycosuria, or of glycosuria followed by cancer, where he could verify the facts by autopsy or otherwise, showed that the pancreas was involved. The relation of the islands of Langerhans to diabetes was generally accepted, and, this being granted, failure of the islands resulted in diabetes or cancer or both, depending on various other factors. According to this theory of Little, if cancer resulted, such cancer should occur in endermic tissues, since the islands were of endermic origin. The endocrinous system, it would appear, was not confined to the ductless glands. It had been asserted by Blair Bell that every cell in the body might be an internal secretory organ, and Wright had expressed his conviction that the opsonins must be considered as products of the endocrin glands. In regard to the efficacy of the glandular extracts in the treatment of cancer, all that he had stated in the paper was that they served to ameliorate the condition and relieve pain, thus offering an encouraging field for practical application. As to their curative effects, the results obtained by Little, Bazzoche, Billard, and others, might be cited.

Letters to the Editors.

ADVICE FROM A DISTINGUISHED LAYMAN.

NEW YORK, April 18, 1915.

To the Editors:

I have, though an untechnical layman, read with great pleasure and profit, Doctor Da Costa's *The Trials and Triumphs of the Surgeon* in the April 10th issue of the *NEW YORK MEDICAL JOURNAL*, and more than that, I have read most of it to similar laymen with like results. This lecture I think should be put into pamphlet form and distributed free among all medical students and young men contemplating the study and practice of medicine for their enlightenment and direction. Some years ago I happened in New York to be associated in a general way with a lot of medical students, and having always had many friends among physicians, some of whom should never have been physicians, I was particularly interested in studying these young men and sizing them up for their future success. It has not yet been long enough to determine any measure of success to them, but I am sure certain ones among them never will amount to much and should never have wasted their time in the course. Somehow or other I can "sense" the qualities in a man that will make a successful physician of him, and some of these youngsters were totally lacking. When I say "successful," I don't necessarily mean financially successful, though that may follow professional success.

I don't know that any of the medical schools have vocational experts in their faculties, but all of them should have and every applicant should be put through the third degree to begin with and then given a year of the regular college course. At the end of that period he should be handed over to the vocational experts again and if he fail on his examination for "quality" he should be relieved from pursuing his studies further, unless there is money enough behind him to send him through anyhow. In which event, no college should risk its standing by giving him a diploma to practise medicine on patients who really might deserve better treatment.

With the assurances of my continued esteem to Doctor Da Costa, I am, etc., W. J. LAMPTON.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Dietetics, or Food in Health and Disease. By WILLIAM TIBBLES, LL.D., M.D. (Hon. Causa), Chicago; L.R.C.P., Edin.; M.R.C.S., Eng.; L.S.A., Lond.; Medical Officer of Health, Fellow of the Royal Institute of Public Health, etc., Author of *Food and Hygiene*, *Foods: Their Origin, Manufacture, and Composition*, *Diet in Dyspepsia*, *The Theory of Ions*, etc. Philadelphia and New York: Lea & Febiger, 1914. Pp. vii-627.

The author, after taking up the composition of foods, their digestibility, and the phenomena of absorption and assimilation, devotes this work mainly to the problems of diet in various pathological conditions. It is extraordinarily complete, and space is lacking even to indicate the wide field covered; considerable search fails to disclose any phase of diet which has not received thoughtful attention, although the author refers his readers to his former work on food for further information. There is good ground for Doctor Tibbles's belief that diet is as important as materia medica and therapeutics, and he instances the time given to lectures on diet in agricultural and veterinary schools. The various fads are treated with unsparing contempt, and the whole dietetic question is treated in a sober, scientific manner. The book is essentially modern in character, and due attention is paid to aminoacids, vitamins, enzymes, and lipoids, to percentages of salts, and to phosphorus deficiency. It is an excellent work of reference for the practitioner, yet it is written along lines which are likely to

impel personal research and experiment. The writer is obviously a man of sound education and wide reading, as well as a scientific observer; frequent references to literature and history confirm this statement. We commend the book highly in default of ability further to indicate in our limited space the contents of these 627 closely packed pages.

The Century of Columbus. By JAMES J. WALSH, K. C. St. G., M. D., Ph. D., LL. D., Litt. D. (Georgetown), Sc. D. (Notre Dame), Professor of Physiological Psychology at the Cathedral College; Life Member of the New York Historical Society, Member of the New York Academy of Medicine, etc. With 86 Illustrations. New York: Catholic Summer School Press, 1914. Pp. xliii-577.

This work is scarcely second to the author's *The Thirteenth Greatest of Centuries* in its picture of an existence, in which a population filled with faith passes life, reading wonderful books, gazing on masterpieces of painting, and listening to inspired triumphs in music. All is grand, glittering, and gorgeous in this book; it is full of high lights and has no shadows, nothing to mar the dazzling fires of genius, until the demon Reformers, by leading the people to do a little thinking, reduce them to poverty, ignorance, and despair. Apparently everybody had a splendid time at the show from the time of Roman decadence until Luther came rudely in, put out the lights, and rang down the curtain. Only now are we beginning to relearn painfully and slowly secrets that were once the property of the humblest.

By taking only the distinguished men of almost any century, it is possible to give a misleading impression of the general status of the people, their culture, their health, and their happiness. The wonderful achievements recorded in this book were confined to a very small group of men, and the money which enabled the aristocracy to patronize and make prosperous the various artists was wrung from the lower classes in blood and tears. If there were organ pipes (of the curious length of thirty-five feet), there were none in the sewers; if there were many magnificent pictures, there was a shortage of bath tubs; there were few to read the beautiful printed and bound books. This last fact throws a light on Doctor Walsh's statements regarding the science of the physicians of the period; how little it could have reached an illiterate populace may be conjectured from the ignorance of the people of our own time of the commonplaces of scientific medicine, antitoxins, for example. As a matter of fact, the people of that time were saturated with the most grotesque medical superstitions. Another *non sequitur* lies in leading the reader to think that Thomas à Kempis's wonderful *Imitation* is in any way characteristic of the time; its exalted spiritual style is far removed from the coarse and profane common speech of that day. It seems disingenuous of the author to express his inability to understand why this period should have been great, and then to attribute directly to the reformers the inevitable reaction which followed. Many readers will, of course, continue to believe that the Reformation was the climax to the Renaissance and not the first step toward degeneracy.

Doctor Walsh thinks that a sort of mystical atmosphere pervaded our globe between 1450 and 1550 and inspired people to great deeds, to the discovery of America among others. Was not the discovery an accident, however? Did not Columbus expect to arrive on the east coast of Asia, did he not, in fact, believe he had done so when he named the land the West Indies? Columbus was one of a small group that believed the earth was round. His belief excited the bitterest animosity among the orthodox.

It is more wholesome and pleasant to have education and culture spread out, even if somewhat thinly, over the whole population than to have it isolated in thick masses here and there with vast barren spaces between. Our own century is the best so far; are we not happier? We are at least healthier, more comfortable, more at ease, we live longer, we are less cruel, less dirty, less bigoted. Too much inventive genius in the "wonderful century" was given to the devising of instruments of torture and too little to improving plumbing. We had rather be a man of moderate means here and now than in either of Doctor Walsh's pet periods, 1200 to 1300 and 1450 to 1550, inhabiting a waterless, furnaceless mansion, without gas, electricity, or drains, and no "movies" around the corner.

We wish we had more space to discuss this interesting

volume, for if the reader bears in mind Doctor Walsh's partiality for the *tempus actum* and his easily comprehensible bias, he will enjoy his work immensely. It is packed with interesting detail, and the style is fluent and entertaining, lightened by humor, and rich in enthusiasm. The illustrations are admirable, and it was happy thought to find new ones and not merely reprint the standard pictures which have done such sturdy service.

Blood Pressure, its Clinical Applications. By GEORGE WILLIAM NORRIS, A. B., M. D., Assistant Professor of Medicine in the University of Pennsylvania; Visiting Physician to the Pennsylvania Hospital; Assistant Visiting Physician to the University Hospital; Fellow of the College of Physicians of Philadelphia. Illustrated with 98 Engravings and One Colored Plate. Philadelphia and New York: Lea & Febiger, 1914. Pp. viii-372.

Although the author has endeavored to present the important subject of blood pressure in a condensed form, there is abundant evidence throughout his book that he has carried out his object without in the least impairing its practical value. Experimental and clinical data are furnished wherever they are necessary to elucidate the text, and the references are sufficiently numerous to enable the reader to amplify his knowledge on a given subdivision of the subject if he deems it advantageous to do so. The number of instruments available for the estimation of the blood pressure has become very great, but many of the most important are shown in illustrations. The scope covered by the book is comprehensive. Beginning with an excellent review of the physiology of blood pressure by J. Harold Austin, the following subjects are considered: Its instrumental estimation; venous blood pressure; the functional efficiency of the circulation as determinable by blood pressure estimation and allied tests; essential hypotension; the blood pressure in acute infectious disease, in chronic infectious disease, in exogenous intoxications, in cardiac disease, in arteriosclerosis, cardiovascular disease, nephritis, etc.; the treatment of arterial hypertension; the effects of drugs and glandular extracts upon blood pressure; the blood pressure in metabolic disease and miscellaneous conditions, in diseases of the nervous system, in surgery and obstetrics, and finally, in ophthalmology. On the whole, the book is a very satisfactory one.

Obstetrical Nursing. A Manual for Nurses and Students and Practitioners of Medicine. By CHARLES SUMNER BACON, Ph. B., M. D., Professor of Obstetrics, University of Illinois and the Chicago Polyclinic; Medical Director, Chicago Lying-in Hospital and Dispensary; Attending Obstetrician, University, Chicago Polyclinic, Henrotin, German, and Evangelical Deaconess Hospitals. Illustrated with 123 Engravings. Philadelphia and New York: Lea & Febiger, 1915. Pp. xii-355.

This is the latest addition to the well known Nurses Text-book Series. It is a work of unusual value, and contains all that any nurse is likely to require on the subject of obstetrics. It is well written, printed in large and clear type, adequately illustrated, is of convenient size, and should be popular with nurses and medical students. The book contains an introductory chapter on the duties of a nurse to herself, to the doctor, and to the patient; and this chapter at least should be read by all who expect to engage in obstetrical nursing.

Interclinical Notes.

F. P. A., in the *New York Tribune* for April 19th, gives the following simple hygienic hints to women who plunge intemperately into work in the upstate canneries:

First, get plenty of fresh air and good food. If you must be at the factory at six, rise at four; hurry shortens your life. Take a warm bath followed by an alcohol rub. For breakfast, a little fruit, cereal with plenty of rich cream and two fresh eggs. Walk to the factory if possible; if not, avoid crowded street cars. Automobiles are cheaper than they once were; and most factories have parking space. Work not too fast; hurry kills. A light luncheon is advisable; plenty of fresh vegetables will sustain you. Lie down for an hour before dinner, relaxing utterly. Din-

ner may be more elaborate, if desired, than luncheon and breakfast. Lamb, chicken, and beefsteak are all good. The evening may be given over to reading or dancing, but you should be in bed by eight, in order to get eight hours of sound, refreshing sleep. Have a sleeping porch; or, if that be impossible, do not sleep more than one in a room. Outdoor exercise is important, too; so, for Sundays and slack times, join some good country club and play golf. These admonitions are sound, as any physician will tell you. And, above all, *don't worry*.

* * *

George Kennan, in the *Outlook* for April 14th, discusses what is likely to happen in Russia after the war. He points out as significant the fact that the autocracy is opposed to the establishment of hospitals, even field hospitals, under any auspices but those of the orthodox church. Zephine Humphrey has some interesting Reflections on Feminism. This complex question will never be thoroughly understood until it is studied on a physiological basis, something unlikely in this country for many a long day. Some day it will be a nice question whether imperfectly sexed people should have anything to say about certain State and National problems, their point of view being essentially and ineradicably personal and usually not sympathetic with that of the majority.

* * *

The *Survey* for April 17th comments on the health department's war on local quacks, aided by *Harper's Weekly* and the *Tribune*. Typhus and typhoid come in for attention, too, and the discovery of typhoid carriers is noted in Lehigh University at South Bethlehem, in Hartford, Conn., and in California. There are portraits, not unattractive, of three Filipino trained nurses.

* * *

How little there is new under the sun may be judged, in part, from some details regarding a certain roadhouse that flourished in London, circa 1754, under the name of the Dog and Duck. The Reverend Mr. O'Donoghue, in his *Story of Bethlehem Hospital* (Bedlam), tells how a "long room" in this establishment was furnished with tables for drinking purposes and had a special floor whereupon the young people danced figures known, as in our own day, by the names of lower animals. The "duck rig and puppy" was a favorite dance, and the success of the inn was so great that its press agent boldly advertised it as a better place of education for young girls than the usual fashionable boarding school.

* * *

A passage amusing from another point of view occurs in the work referred to—of which we presented a formal review in our issue for April 17th—wherein the reverend author laments the abolition of employment for the demented patients. About 1852, it appears that the governors began to admit patients of a better class socially than had formed the old clientele, and work was found to be beneath their dignity! This is highly British, and it is interesting to note that no effort was made by the attending physicians to appeal to any remnant of common sense in the patients, who were permitted to cling to their proud and gentlemanly prerogative of doing no useful labor.

* * *

The physiological puzzle of the hypnotic state in animals is summarized from *Nature* in the *April Current Opinion*; also Professor Hugh Elliot's theory that a spiritual factor in life is a physiological impossibility. There is much interesting matter about the stage, ranging from Barker's sensational reversions, through Mantell's interpretation of *Hamlet*, to the \$10,000 prize play which failed to interest New York audiences. We are inclined to suspect sometimes that a thing might really be of the very first rank artistically and yet fail to interest Broadway. Strictly speaking, the female human calf, while beautiful and attractive in many ways, is not an artistic thing, but if sufficiently numerous and obvious, it is more remunerative to managers than the sublimest combined art of Shakspeare and a Booth.

◆

Meetings of Local Medical Societies.

MONDAY, April 26th.—Therapeutic Club, New York; Medical Society of the County of New York; Psychiatric Society of Ward's Island; Poughkeepsie Academy of Medicine.

TUESDAY, April 27th.—New York Psychoanalytic Society; New York Dermatological Society; Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); New York Medical Union; New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York; Woman's Hospital Society, New York.

WEDNESDAY, April 28th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Surgical Society; New York Society of Internal Medicine; Schenectady Academy of Medicine.

FRIDAY, April 30th.—Academy of Pathological Science, New York; Hospital Graduates' Club, Brooklyn.

SATURDAY, May 1st.—Benjamin Rush Medical Society, New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending April 14, 1915:

Bailey, Charles A., Acting Assistant Surgeon. Directed to accompany the officers of the Immigration Service from West St. John, N. B., to Quebec, P. Q., on or about April 22, 1915, for duty in the medical examination of aliens. **Crohurst, H. R.**, Sanitary Engineer. Directed to proceed to Farnham, N. Y., to assume charge of the construction and operation of an experimental plant for investigations of cannery waste disposal. **De Saussure, R. L.**, Assistant Surgeon. Directed to proceed to Washington, D. C., and report to Surgeon L. L. Lumsden; thence to Anne Arundel County, Md., and Wilson County, Kans., for duty in field investigations of rural sanitation. **Fox, Carroll**, Surgeon. Detailed to proceed to Lapeer, Mich., April 21, 1915, for the purpose of presenting an address on communicable diseases in connection with the good health week to be held in that town. **Fox, Warren F.**, Assistant Surgeon. Directed to proceed to San Francisco, Cal., and report to the medical officer in charge of the marine hospital for duty and assignment to quarters. **Freeman, A. W.**, Epidemiologist. Directed to proceed to Topeka, Kans., for duty in field investigations of rural sanitation under Surgeon L. L. Lumsden. **Frost, W. H.**, Passed Assistant Surgeon. Directed to report at the Bureau, Washington, D. C., for conference relative to investigations of the pollution of navigable streams. **Gardner, C. H.**, Surgeon. Granted one day's leave of absence, April 10, 1915, under paragraph 193, Service Regulations. **Gillespie, J. M.**, Passed Assistant Surgeon. Relieved from duty at Ellis Island, N. Y., and from special temporary duty at New Orleans, La., and directed to proceed to Chicago, Ill., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Gustetter, A. L.**, Acting Assistant Surgeon. Granted seven days' leave of absence from March 27, 1915. **Harrington, F. E.**, Assistant Epidemiologist. Directed to proceed to Anne Arundel County, Md., for duty in field investigations of rural sanitation; also to Orange County, N. C., for like duty. **Hommon, H. B.**, Sanitary Chemist. Directed to proceed to Farnham, N. Y., to advise in regard to the construction of a plant for investigations of cannery waste disposal; also to Grove City, Pa., for conference in regard to the location of a plant for investigations of creamery waste disposal. **Kesl, George M.**, Acting Assistant Surgeon. Granted one day's leave of absence, April 18, 1915. **Miller, K. E.**, Assistant Surgeon. Relieved from duty on the coast guard cutter *Onondaga*, and directed to proceed to Washington, D. C., and report to Surgeon L. L. Lumsden; thence to Wilson County, Kans., for duty in field investigations of rural sanitation. **Olesen, Robert**, Passed Assistant Surgeon. Relieved from duty at the Bureau, Washington, D. C., and directed to proceed to Pittsburgh, Pa., and assume temporary charge of the marine hospital at that port. **Perry, J. C.**, Senior Surgeon. Granted one day's leave of absence, April 12, 1915. **Prather, D. J.**, Assistant Surgeon. Directed to report to the director of the

Hygiene Laboratory for temporary duty; after preliminary instructions, directed to proceed to Anne Arundel County, Md., Orange County, N. C., and Walker County, Ala., for duty in field investigations of rural sanitation. **Ridlon, J. R.**, Passed Assistant Surgeon. Detailed to represent the Service at the meeting of the Georgia Association of State, Municipal, and County Boards of Health, at Macon, April 20, 1915. **Rucker, W. C.**, Assistant Surgeon General. Directed to proceed to New Orleans, La., about April 26, 1915, for the purpose of inspecting service measures in force for the elimination of plague infection; also to proceed from New Orleans to Fort Worth, Texas, for the purpose of addressing the State Medical Society, and for conference with health officers as to measures for the prevention of the introduction of plague infection. **Scott, E. W.**, Assistant Surgeon. Relieved from duty in charge of the Marine Hospital at Wilmington, N. C., and directed to proceed to Stapleton, N. Y., and report to the medical officer in charge of the Marine Hospital for duty and assignment to quarters. **Stoner, J. B.**, Surgeon. Relieved from duty at the Marine Hospital, Pittsburgh, Pa., and directed to proceed to Wilmington, N. C., and assume charge of the Marine Hospital at that port. **Von Ezdorf, R. H.**, Surgeon. Detailed to represent the Service at the meeting of the Alabama Medical Association, to be held at Birmingham, April 20-21, 1915, and at the meeting of the First District Medical Society of Arkansas, at Jonesboro, Ark., April 27, 1915. **Watkins, J. A.**, Assistant Surgeon. Granted two days' leave of absence, April 1-2, 1915. **White, J. H.**, Senior Surgeon. Detailed, at the request of the officers of the Tennessee State Medical Association, to represent the Service at the meeting to be held by that Association at Nashville, Tenn., April 13-15, 1915. **Williams, L. L., Jr.**, Assistant Surgeon. Directed to proceed to Norfolk, Va., and report to the commanding officer of the coast guard cutter *Onondaga* for duty. **Yarbrough, H. C.**, Assistant Surgeon. Relieved from duty at the Hygienic Laboratory, and directed to report to Surgeon L. L. Lumsden for duty in field investigations of rural sanitation in Wilson County, Kans.

Appointments.

Dr. Warren F. Fox, Dr. Louis L. Williams, Jr., Dr. David J. Prather, and Dr. Richard L. De Saussure commissioned as assistant surgeons in the Public Health Service.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending April 17, 1915:

Chappell, Sidney L., First Lieutenant, Medical Corps. Relieved from duty at Fort Sam Houston, Texas, and ordered to proceed to Galveston, Texas, and report in person to the commanding general of Ambulance Company No. 8, for duty. **McKinney, Fairfield L.**, Captain, Medical Corps. Now on temporary duty with Ambulance Company No. 8, is relieved from further duty at Fort Caswell, North Carolina, and assigned to the command of that organization. **McMurdo, H. B.**, First Lieutenant, Medical Corps. Relieved from duty at the Letterman General Hospital, and ordered to report in person to the commanding general, Philippine Department, Manila, P. I., for assignment to duty; granted two months and ten days' leave of absence upon his relief from duty at the hospital. **Price, Marshall L.**, First Lieutenant, Medical Reserve Corps. Honorably discharged from the service of the United States, his service no longer being required, by direction of the President. **Rogers, C. O.**, First Lieutenant, Medical Reserve Corps. Resignation of commission in the Medical Reserve Corps has been accepted by the President, to take effect April 1, 1915. **Snow, Corydon G.**, Captain, Medical Corps. Granted twenty-one days' leave of absence. **Straub, Paul F.**, Lieutenant Colonel, Medical Corps. Relieved from duty in the Philippine Department, and ordered to proceed to the United States, relief to take effect on or about August 15, 1915. **Yemans, Herbert W.**, First Lieutenant, Medical Reserve Corps. Leave of absence has been granted for two months to take effect upon his arrival in the United States.

Births, Marriages, and Deaths.

Married.

Beaulieu—Fay.—In Taunton, Mass., on Thursday, April 8th, Dr. Elmer J. Beaulieu and Miss Anna M. Fay. **Collier—Buckley.**—In Susquehanna, Pa., on Monday, April 5th, Dr. Martin H. Collier, of Williamsport, Pa., and Miss Helen V. Buckley. **Grimes—Mitchell.**—In St. Louis, Mo., on Wednesday, April 7th, Dr. Rollo James Grimes, of Shobonier, Ill., and Miss Zelpia Mitchell. **Hall—Payne.**—In St. Paul, Minn., on Thursday, March 18th, Dr. Clarence H. Hall, of Cherokee, Iowa, and Miss Lucille Payne. **Hess—Keller.**—In Bloomsburg, Pa., on Tuesday, April 6th, Dr. Delbert M. Hess, of Rohrsburg, Pa., and Miss Nellie Maude Keller. **Pierson—Fowle.**—In Arlington, Mass., on Wednesday, April 7th, Dr. Phillip Hale Pierson, of Wellesley Hills, Mass., and Miss Grace Elizabeth Fowle. **Rodman—Hinman.**—In Summit, N. J., on Saturday, April 10th, Dr. John Stewart Rodman, of Philadelphia, and Miss Eunice Bodwich Hinman. **Sajous—Porter.**—In Philadelphia, on Wednesday, April 21st, Dr. Louis T. de M. Sajous and Miss Jessie Porter, of Bowling Green, Ky. **Thomas—Pier.**—In Dorranceton, Pa., on Monday, April 5th, Dr. F. Donaldson Thomas and Miss Frances Pier. **Whalen—Cooper.**—In St. Louis, Mo., on Thursday, April 8th, Dr. Walter E. Whalen, of Ogden, Utah, and Mrs. Amelia Jane Cooper.

Died.

Andrews.—In Burlington, Vt., on Monday, April 12th, Dr. Bertrand J. Andrews, aged sixty-five years. **Boylan.**—In New York, on Tuesday, April 13th, Dr. Joseph E. Boylan, of Roslyn, Long Island. **Brown.**—In Mount Sterling, Ky., on Tuesday, April 13th, Dr. John L. Brown, aged fifty-one years. **Candler.**—In Dillsboro, N. C., on Monday, March 29th, Dr. James M. Candler, aged sixty-eight years. **Collins.**—In Lawrenceburg, Ind., on Sunday, April 4th, Dr. Samuel H. Collins, aged sixty-four years. **Collins.**—In Lawrence, Mass., on Thursday, April 8th, Dr. Thomas H. Collins, aged thirty-five years. **Davis.**—In Marion, Ind., on Monday, April 5th, Dr. Amos T. Davis, aged seventy-nine years. **Edwards.**—In Sebree, Ky., on Monday, April 12th, Dr. Charles L. Edwards, aged fifty-one years. **Freeman.**—In Rock Ridge, N. C., on Monday, April 5th, Dr. Howard F. Freeman, aged sixty-seven years. **Fuller.**—In Fairport, N. Y., on Saturday, April 3d, Dr. C. M. Fuller, aged eighty-six years. **Harwood.**—In Boston, Mass., on Sunday, April 11th, Dr. Charles Hamant Harwood, aged fifty-one years. **Hughes.**—In Philadelphia, on Thursday, April 8th, Dr. Donnell Hughes, aged fifty-seven years. **Hunter.**—In Washington, Ky., on Monday, April 12th, Dr. Alexander Hunter, aged seventy-three years. **Jacoby.**—In Elizabeth, N. J., on Friday, April 9th, Dr. Max Jacoby, of Roosevelt, N. J., aged thirty-three years. **James.**—In Morgantown, Ky., on Saturday, April 10th, Dr. Emmett James, aged forty-seven years. **Mann.**—In Boston, Mass., on Friday, April 9th, Dr. William O. Mann, aged forty-five years. **Mayer.**—In Louisville, Ky., on Saturday, April 10th, Dr. Chester Alfred Mayer, aged fifty-eight years. **Oliphant.**—In Camden, N. J., on Monday, April 12th, Dr. Eugene T. Oliphant, of Bridgeport, N. J., aged sixty-six years. **Oliver.**—In Penn Yan, N. Y., on Tuesday, April 6th, Dr. William A. Oliver, aged fifty-eight years. **Philleo.**—In Brooklyn, N. Y., on Sunday, April 11th, Dr. Willis H. Philleo, aged fifty-two years. **Revaillies.**—In Marshallton, Del., on Wednesday, April 7th, Dr. Felix Thebault Revaillies, aged seventy-seven years. **Robinson.**—In Medina, Ohio, on Sunday, April 4th, Dr. Robert Robinson, aged seventy-five years. **Smith.**—In Portland, Me., on Friday, April 2d, Dr. Victor H. Smith, aged forty-six years. **Stewart.**—In New Castle, Del., on Thursday, April 8th, Dr. David Stewart, aged sixty-nine years. **Waechter.**—In New York, on Sunday, April 11th, Dr. Adolph L. Waechter, aged thirty-eight years. **Waldstein.**—In London, England, on Monday, April 12th, Dr. Louis Waldstein, aged sixty-two years. **Wing.**—In North Anson, Me., on Saturday, April 3d, Dr. Ellery M. Wing, aged fifty-nine years.

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Original Communications.

PLASTIC SURGERY—CORRECTIVE AND PALLIATIVE REPAIR—IN THE TREATMENT OF MALIGNANT DISEASE.*

BY WILLIAM SEAMAN BAINBRIDGE, A. M., Sc. D.,
M. D., C. M.,
New York.

Each year during the past decade it has been our custom, in a clinical lecture, to deal with some phase of the cancer problem, and to present illustrative cases, together with pictures, wax casts, and pathological specimens.

Ten years is a very definite milestone, and it may not be amiss, on this occasion, to recapitulate, briefly, the subjects covered during that period.¹ The special aspects of the question have been selected year by year because they seemed to be of great interest at the time, or because they fitted into some particular line of clinical or laboratory research, or both combined, which was being followed just then, or concerning which we wished to make a formal report. This year we come to a consideration of the possibilities of treatment of malignant disease by means of plastic surgery.

*Given in part as the Tenth Annual Clinical Lecture on Cancer at the New York Skin and Cancer Hospital, April 30, 1914. Read in full, with stereopticon clinic of illustrative cases, before the Bronx County Medical Society, March 17, 1915.

¹The subjects covered in the preceding years are catalogued below:

1. A Clinical Lecture on Malignant and Nonmalignant Growths, *Atlanta Journal-Record of Medicine*, June, 1905.
2. Malignant and Nonmalignant Growths, *American Journal of Surgery*, August, 1906.
3. Some Phases of the Surgical Treatment of Cancer—A Clinical Lecture, *Ibidem*, November, 1907.
4. Irremovable Cancer, *NEW YORK MEDICAL JOURNAL*, October 3, 1908.
5. The Enzyme Treatment for Cancer—Final Report, *Medical Record*, July 17, 1909.
6. Arterial Ligation for Irremovable Cancer of Pelvic Organs—Technic Adapted and Amplified, *Woman's Medical Journal*, April, 1911.
7. The Campaign Against Cancer: Educational, Experimental and Clinical, *American Journal of Dermatology*, July, 1911.
8. The de Keating-Hart Method of Fulguration and Thermoradiotherapy, *Medical Record*, July 6 and 20, 1912.
9. The Surgical Treatment of Cancer, *International Journal of Surgery*, May, 1913.

BRIEF HISTORY OF PLASTIC SURGERY.

Anaplasty, restorative or plastic surgery, is not a discovery of modern times. The ancient Hindus, to whom so many wonderful achievements are popularly attributed, are credited with having performed plastic operations two thousand years ago. The history of the City of Cut Noses perhaps gives the explanation of the early Hindu response to that necessity which has ever been the mother of invention.

It is recorded that a certain Hindu ruler imposed upon the inhabitants of a conquered city the retributive punishment inflicted by the cutting off of the nose, only infants and those who played wind instruments being exempt. This disfiguring punishment was quite prevalent, according to accounts, in India, and quite naturally stimulated some of the inhabitants to make the attempt to repair the mutilated physiognomy just as a mason would repair a damaged wall, or a plumber a defective drainage system. Strange as it may seem, the tile makers, who are reputed to have been a more or less despised



Fig. 1. Fig. 1a.
CASE 1. Fig. 1.—Tuberculosis of right ala nasi; condition upon admission to hospital. Fig. 1a.—Result of plastic operation.

class in those early days, delegated to themselves the task of nose mending. Presumably the thought came to these particular artisans as a result of their familiarity with cements and different processes of repair calling for the adhesion of one substance to another. At any rate, the earlier attempts at plastic repair dealt with the "sticking on" process rather than the sewing or stitching on with which we are now familiar.

The very early history of plastic surgery seems to have been enshrouded in mystery all along, and to have been received with a goodly degree of skepticism. However, there is evidence that many of the leading lights of the medical world of olden times contributed to this particular field. The Surgical Bible of Celsus (*De Medicina*), contains references to his work in this connection. The *Ayur-Veda*, of Susrata, details this author's attempts at rhinoplasty. For centuries, however, plastic surgery seems to have had a fitful life, with periods of revival and of quiescence, until Kaspar Tagliacozzi, the celebrated



Fig. 2a.

Fig. 2b.

Fig. 2c.

(CASE II. Fig. 2a.—Cicatricial contraction of palm and index finger, following burn. Fig. 2b.—Hand after detachment of flap from abdomen. Fig. 2c.—Condition two months after plastic operation, which time flap was thinned and moulded.

rhinologist of Bologna, established the science and art upon such a footing that its subsequent history has been one of steady progress. Thus, from the presumably crude attempts of the tile-maker plastic surgeons of ancient India, who are said to have reconstructed noses from skin taken from the gluteal region, and to have been quite adept in skin grafting, there has been evolved a most important branch of surgery which deals with restorative and palliative plastic repair.

It is not within the scope of this paper to detail this evolution, nor is it our purpose to describe in full the various methods of skin grafting and of anaplastic surgery in general. The

various methods of skin grafting, such as that of Reverdin, of Thiersch, of Wolfe, and the flap graft of Ehrenfried, as well as the different modifications of these, are matters of common knowledge. The source of the graft or flap—whether from animals (zooplastic), from other human beings than the patient (heteroplastic), which includes tissues from cadavers, or from the individual subject (autoplastic)—must be determined by circumstances. The same applies to

the material used, such as "epithelial scrapings," warts, corns, callosities, blister skin, egg membrane, sponge grafts, etc. The entire field of anaplastic surgery furnishes a fascinating subject

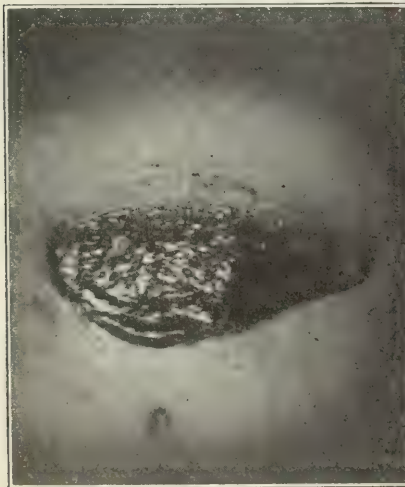


Fig. 2a.

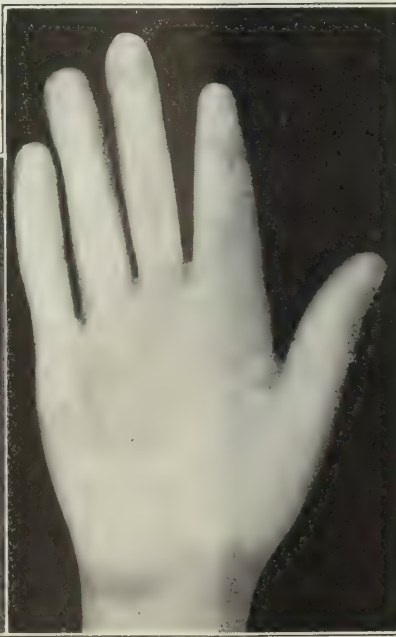


Fig. 2c.



Fig. 2d.

CASE II. Fig. 2a.—Abdomen, after removal of autoplasmic flap. Fig. 2c.—Condition of hand March 15, 1915, sensation completely restored in hand. Fig. 2d.—Wound in abdomen, made by removal of flap, closed.

for study and investigation to those interested. The principles of plastic surgery as employed in the treatment of other conditions are applicable in

disease so that the patient dies without knowing that the cancer had recurred or had extended to internal organs.

Anaplastic surgery, as applicable to cancer, may be considered under the two subdivisions: 1. Corrective or restorative repair; 2, palliative repair.

CORRECTIVE OR RESTORATIVE REPAIR.

The conditions to which corrective or restorative repair is applicable may be classed as:

1. Precancerous conditions, or conditions which, in accordance with the irritation theory of the cause of cancer, may be presumptive forerunners of malignancy.

2. Removable cancer, or cases of cancer in which



Fig. 3.

Fig. 3a.

CASE III. Fig. 3.—Epithelioma of nose; condition when admitted to hospital. Fig. 3a.—Growth removed, down to cartilage, wound fulgurated.

the management of malignant disease. The surgeon who operates upon patients with cancer has perhaps greater opportunity for the utilization of these methods than has the surgeon who passes these cases on to his confrères. He has not the opportunity, to be sure, of scoring as brilliant results from the point of view of the "beauty specialist," that the general surgeon or the orthopedist enjoys, but he is amply rewarded by comparing, in his imagination, the condition of the victim of malignant disease who



Fig. 4.

Fig. 4a.

CASE IV. Fig. 4.—Advanced stage of malignancy—epithelioma of nose. Before operation. Fig. 4a.—After removal of growth.

all macroscopic evidence of the disease is amenable to surgical removal, but in which physical defects resulting from the disease or from its removal, are to be repaired.

Precancerous conditions. The following cases are illustrations of the first class. All diagnoses in



Fig. 3b.

Fig. 3c.

CASE III. Fig. 3b.—Condition after fulguration. Fig. 3c.—Result of plastic operation.

has been given the benefit of plastic restorative or palliative repair, with the state of the one who has been left to go through the remainder of life with a harrowing and painful disfigurement.

Furthermore, the surgeon who brings to bear modern methods of plastic surgery in the treatment of some of these patients, has the comforting realization that in many instances by applying these methods, after the removal of as much as possible of the external cancer, he may be able to hold the malignant process in abeyance on the surface of the body, thus mitigating suffering, knowing that meanwhile the patient is being carried on to the grave by incurable internal cancer. It is possible, many times, to clear up and repair the external ravages of the



Fig. 4b.

Fig. 4c.

CASE IV. Fig. 4b.—Flap taken from arm in position before final operation. Fig. 4c.—After plastic operation.

the cases herein reported were both clinical and pathological.

CASE I. J. P., female, aged fifty-nine years, admitted to the New York Skin and Cancer Hospital, April 14, 1913.

Diagnosis: Tuberculosis of right ala nasi (Fig. 1).

Previous history: Seven years before admission patient was treated by another physician by means of a "caustic



Fig. 5.

Fig. 5a.

Fig. 5b.

CASE V. Fig. 5.—Epithelioma of orbit. Before operation. Fig. 5a.—After plastic operation. Fig. 5b.—Condition April, 1914.

paste." The "sore" disappeared after three applications, and for six years there was no recurrence. Six months before admission a recurrence took place, and, despite the advice of her family physician to submit to its surgical removal, the condition was neglected, until it had assumed the proportions shown in the first picture. She then consulted us.

Operation, April 17, 1913: Curettage, with de Keating-Hart fulguration.

Plastic operation: After a period of observation to determine whether recurrence took place, and none having occurred, plastic operation was performed. Fig. 1-a, which shows the condition on October 23, 1914, gives the result of plastic corrective repair of the defect after curettage and fulguration.

CASE II. L. S., female, aged nine years, admitted to the New York Skin and Cancer Hospital, January 6, 1912.

Diagnosis: Cicatricial contraction of both palms, resulting from burns sustained when thirteen months old. Fig. 2 shows condition of right hand, with contraction of index finger. Spot of suspicious degeneration in centre of keloid, foreshadowing possible malignancy.

Operation, January 8, 1912, for removal of cicatrix on palmar surface of left hand. The skin between the thumb and the index finger was cut through and sewed at right angles to the incision, thus releasing the pull on the finger.

Plastic operation, April 20, 1912: Fig. 2-a shows denuded area of abdomen, from which an autoplasmic graft was removed for correcting the deformity of the right hand and finger. The hand was kept to abdomen for three and a half weeks, then released. Fig. 2-b shows the hand after detachment of the flap from the abdomen. Fig. 2-c represents the condition June 8, 1912, at which time the graft was moulded and thinned. Fig. 2-d, taken January 15, 1915, shows the wound in abdomen, from which graft was removed, closed. Fig. 2-e, made on the same day, gives the present condition of the right hand. There is absolute return of sensation in the skin of the palm, not only vascular, but nervous connections as well, having de-

veloped. The child is an art student, and is using her hand perfectly well.

Removable cancer. In many instances cancer which is completely removable so far as all macroscopic manifestations are concerned, may leave a defect of such magnitude as to be of serious annoyance and inconvenience if not corrected by plastic surgery. The following cases illustrate this class.

CASE III. M. J. A.,² female, aged seventy-seven years, admitted to the New York Skin and Cancer Hospital, May 13, 1912. The condition at that time is shown in Fig. 3.

Diagnosis: Epithelioma of nose.

Previous history: Twenty-five years ago, after striking her nose, a small red spot, the size of the finger nail, appeared. This was elevated, wartlike, and soon began to bleed. She was treated by her physician with salves and solutions, without benefit. The growth was finally excised, and the bone curetted. There was no recurrence for five years. Recurrence then took place in the scar. This was treated with local applications and x rays, without benefit. The patient was then referred to me for operation.

Operation, May 16, 1912: Growth removed down to cartilage of nose, and nose cavity entered on left side. The wound was then fulgurated, according to the de Keating-Hart method. Fig. 3-a shows the condition after fulguration. Recovery uneventful. Wound fulgurated again, March 20, 1913.

Plastic operation, April 3, 1913: Flap brought down from forehead, with skin surface turned in, leaving raw surface outward (Fig. 3-b). Flap cut at its pedicle, April 24, 1913, and fitted into place and sutured. Raw surface covered by skin grafts. Result Fig. 3-c. No recurrence April 30, 1914.³

CASE IV. S. S.,⁴ female, aged sixty years, admitted to

²Reported in the *International Clinics*, 1913.

³Slight recurrence noted in February, 1915.

⁴Reported in *Malignant and Nonmalignant Growths*, *Am. Jour. of Surg.*, Aug., 1906.



Fig. 6.

Fig. 6a.

CASE VI. Fig. 6.—Showing scar on forehead, resulting from removal of epithelioma. Also condition of nose before operation. Fig. 6a.—Condition after plastic operation.

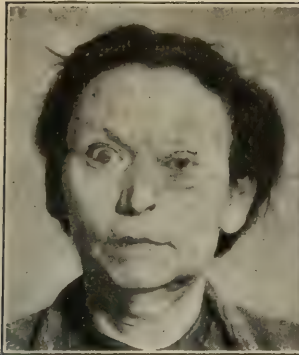


Fig. 7.



Fig. 7a.



Fig. 7c.



Fig. 7d.

CASE VII. Fig. 7.—Lupus and epithelioma of eyelids, left side. Fig. 7a.—Condition after excision of recurrent epithelioma. Fig. 7c.—Another stage of plastic work. Fig. 7d.—Result of plastic operation.

the New York Skin and Cancer Hospital, February, 1905. Diagnosis: Epithelioma of nose and jaw, as shown in Fig. 4.

Operation, February 15, 1905, for removal of all diseased tissue, which included a portion of the nasal process of the superior maxilla, as shown in Fig. 4-a.

Plastic operation, March 15, 1905: Edges of wound freshened, flap dissected up from inner surface of arm of affected side, arm placed over head, flap sutured by its inner margin to the face, and head and arm encased in plaster of Paris. At the end of sixteen days the flap was detached from its base and left in place on the face, as shown in Fig. 4-b. The condition after plastic work was complete is shown in Fig. 4-c.

This case illustrates the possibility of controlling, at least for a time, the external and visible progress of cancer. This patient had been treated for thirteen years, before we saw her, in various cities and by various methods. While all macroscopic evidence of disease was removed before the plastic operation, it would have been impossible to remove all from the bones of the jaw without practically removing half the face. The plastic operation seemed to hold the disease in check, and the patient lived nearly three years, with no external recurrence, oblivious to the fact that she still had cancer. She died of an acute affection entirely apart from the malignant disease.

CASE V. D. P., male, aged sixty years, admitted to the

New York Skin and Cancer Hospital, May 18, 1908.

Diagnosis: Epithelioma of orbit, as shown in Fig. 5, of four years' duration, starting from a small pimple under outer corner of upper lid.

Operation, May 21, 1908: Incision around orbital margin, and removal of all diseased tissue, with a one half inch margin of healthy tissue.

Plastic operation, August 25, 1908. Autoplastic flap from cheek. Fig. 5-a shows the condition shortly after the plastic operation. Fig. 5-b represents the condition in April, 1914.

CASE VI. M. C., female, aged fifty-seven years, admitted to the New York Skin and Cancer Hospital, March 31, 1907, for treatment for what proved to be epithelioma of the forehead, scar from which is shown in Fig. 6. On April 1, 1913, patient was admitted again, for treatment for the nose, condition of which at that time is shown in Fig. 6.

Diagnosis: Epithelioma of nose.

Operation, April 3, 1913: Excision of diseased area, with margin of healthy tissue.

Plastic operation, March 3, 1913, result of which is shown in Fig. 6-a. No recurrence, April, 1914.

CASE VII. M. L., female, aged about forty years, admitted to the New York Skin and Cancer Hospital, Nov. 6, 1912.

Diagnosis: Lupus and epithelioma of eyelids of left side.

Operation, November 17, 1912: Excision of diseased tissue, and fulguration, by the de Keating-Hart method, of the affected area. Fig. 7 shows the condition on December 5, 1912.

Admitted to hospital again, January, 1914, recurrence having taken place. Fig. 7-a, taken January 17, 1914, shows the condition after excision with fulguration of lupus and epithelioma. Incidentally small ulcer of neck excised and



Fig. 7b.

CASE VII. Fig. 7b.—First stage of plastic work.



Fig. 8.



Fig. 8a.



Fig. 8b.



Fig. 8c.

CASE VIII. Fig. 8.—Epithelioma of outer canthus of eye; condition when admitted to hospital. Fig. 8a.—Condition after first operation for removal of growth and fulguration. Fig. 8b.—Flap taken from cheek for plastic operation. Fig. 8c.—Result of plastic operation.



Fig. 9.

Fig. 9a.

CASE IX. Fig. 9.—Epithelioma of eyelid, orbit, and eyeball; condition upon admission to hospital. Fig. 9a.—Condition after removal of eyeball, excision of diseased tissue, and fulguration.

sutured. Figs. 7-b and 7-c give different stages of the plastic work, the flap being taken from the patient's cheek. Fig. 7-d shows the result of the plastic operation.

CASE VIII.

S. S., female, aged thirty-five years, admitted to the New York Skin and Cancer Hospital, January 26, 1912.

Diagnosis: Epithelioma of outer canthus of left eye. This, according to the history, developed upon a lupus scar left six years before.

Operation, January 28, 1912: Excision of epitheliomatous area; fulguration by the de Keating-Hart method. Condition after this operation is shown in Fig. 8.

Recurrence took place, and the patient was again admitted to the hospital, March 5, 1914, at which time the condition was as shown in Fig. 8-a. Area of disease again excised, fulgurated, and prepared for plastic operation.

Plastic operation, March 5, 1914: Flap taken from cheek, as shown in Fig. 8-b, March 12, 1914. Fig. 8-c shows the result of plastic treatment, May 4, 1914.

CASE IX. L. H., male, aged fifty-nine years, admitted to the New York Skin and Cancer Hospital, January 5, 1914.

Diagnosis: Epithelioma, involving right eyelids, orbit, and eyeball, as shown in Fig. 9. Condition complicated by diabetes.

Operation, January 22, 1914: Removal of eyeball, excision of epitheliomatous tissue, fulguration. Fig. 9-a shows the condition on March 5, 1914.

Plastic operation, March 26, 1914: Autoplastic flap taken from forehead, as shown in Figs. 9-b and 9-c. Raw surface left on head covered by skin grafts from thigh. Fig. 9-d shows the condition on August 1, 1914.

CASE X. B. G., female, aged forty-six years, admitted to the New York Skin and Cancer Hospital, April 26, 1909.

Diagnosis: Epithelioma of orbit and adjacent structures, involving eyeball and extending to the dura mater. Fig. 10, reproduction of wax cast taken upon admission, shows the condition before operation.

Previous history: The growth began eight years before, as a small ulcer on the lower lid, following a local infection during an attack of diphtheria. It developed slowly

at first, and very fast for about one year before admission to the hospital. No treatment whatever had been received previous to admission.

Operation, April 26, 1909: The entire growth was removed, including the contents of the orbit, together with its inner wall, down to the dura mater. The wound was packed with gauze and allowed to granulate preparatory to doing a plastic operation.

A subsequent slight recurrence necessitated a second operation, when an area of the dura which was involved, about the size of a ten cent piece, was removed, exposing the brain. The cavity was again packed. For a time the cerebrospinal fluid came from the wound. Finally, however, the area granulated over. Fig. 10-a shows the granulating cavity after excision of epithelioma but before plastic operation. The lines of incision converging toward the ear may be seen, showing the flap which was turned back for the purpose of removing the parotid gland, and the lymphatics and fascia lying along the ramus of the inferior maxilla, with the glands in the superior carotid triangle.

Plastic operation, December 29, 1909: Flaps were taken from forehead and neck and the defect filled in, as shown in Fig. 10-b. Fig. 10-c gives a good idea of how the patient looks wearing the specially constructed glass over the affected side. There is no recurrence, and the patient is perfectly well at the present time.

CASE XI.

J. R., male, aged five months, was admitted to the New York Skin and Cancer Hospital, May, 1904.

Diagnosis: Angioma of face rapidly growing. Clinically malignant.

Previous history: When patient was two weeks old the family physician noted a blue spot

under the skin of the upper lip, just below the septum nasi. This grew rapidly, and in a month

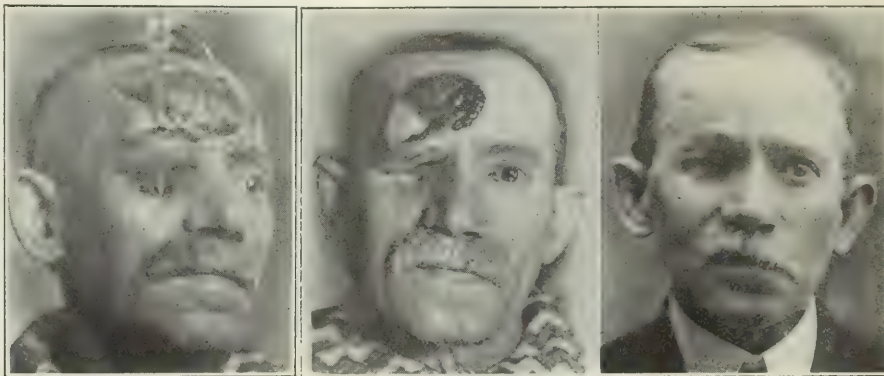
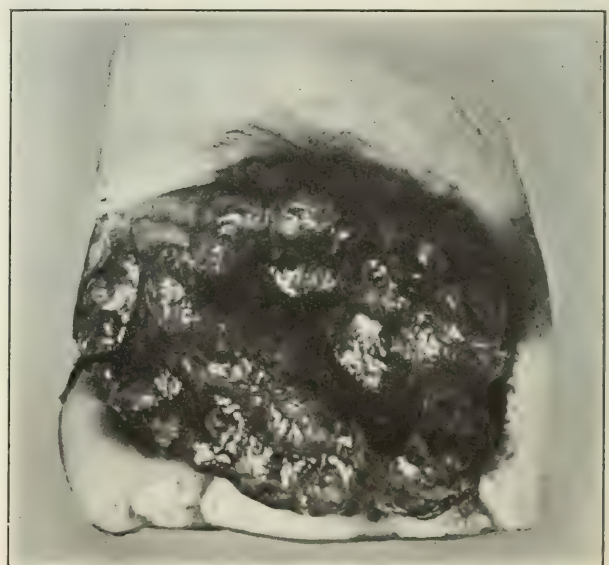


Fig. 9b.

Fig. 9c.

Fig. 9d.

CASE IX. Figs. 9b and 9c.—Successive stages of plastic operation, showing flap taken from forehead. Fig. 9d.—Result of plastic operation.



CASE X. Fig. 10.—Epithelioma of orbit and adjacent structures; reproduction of wax cast of growth, taken upon admission.

⁵Reported in The Campaign Against Cancer: Educational, Experimental, and Clinical, *Am. Jour. of Dermatology*, xv, 7, 1911.

⁶Reported in Two Cases of Special Interest, *Buffalo Medical Journal*, April, 1905.

was as large as a marble, forming quite a projection in the upper lip, as shown in Fig. 11. At six weeks of age treatment was begun by the attending physician with injections of boiling water, from an ounce to an ounce and a half being injected into the growth once a week. Five successive treatments were given. There was considerable sloughing after the second injection. The growth remained apparently quiescent for four weeks after these treatments, then began to grow very rapidly.

Operation, May 6, 1904: Extirpation of the growth, as complete as possible. Each ramification (there was no apparent limiting capsule) was followed and freely excised, the incision being extended on to the septum in both nostrils, and around the alæ nasi almost to the junction of the superior maxilla with the nasal bone on either side. Flaps from the adjacent tissue of the cheek were freed, and by means of catgut and silk sutures the parts were brought into apposition. There was considerable tension above, and to prevent sloughing it was deemed advisable to leave some redundancy of the mucous membrane of the lip at the vermillion border. This is shown in Fig. 11-a.

Plastic operation, October 17, 1904: Upper lip shaped by

merciful affliction than external cancer, and the comfort which the patient experiences with the covering over of the cancerous area is compensation enough for the care expended in the plastic work.

CASE XII. L. P., female, aged thirty-two years, admitted to the New York Skin and Cancer Hospital, February 7, 1912, suffering from irremovable, recurrent cancer of the left pectoral region, following cancer of the breast. It was impossible to remove all the diseased tissue, but by cleaning up the surface, removing as much as possible, and covering over the area with autoplasmic flaps taken from the abdomen, the patient was rendered far more comfortable for the remainder of life than she would have been with such an enormous defect. By cleaning up the surface, eliminating as nearly as was feasible the possibilities of further mixed infection, the inroads of the disease could be checked to a certain extent, and life rendered more tolerable, by palliative repair. Fig. 12 shows the condition when cleaned up ready for plastic operation.

CASE XIII. R. A., female, aged forty-eight years, admitted to the New York Skin and Cancer Hospital, No-



Fig. 10a.

Fig. 10b.

Fig. 10c.

CASE X. Fig. 10a.—Granulating cavity after excision of epithelioma. Fig. 10b.—Result of plastic operation. Defect filled in with flaps from neck and forehead. Fig. 10c.—Patient wearing specially constructed glass.

removal of the projection of mucous membrane. Fig. 11-b shows the result, April, 1905.

The child remained well, with no recurrence of the growth, until February, 1915, when he died in another city of appendicitis, at the age of eleven years. Fig. 11-c was taken in February, 1915.

PALLIATIVE REPAIR.

Irremovable cancer. In many cases in which it is impossible to rid the patient of all macroscopic evidences of cancer, great relief may be afforded, both physically and psychically, by clearing off the affected area, fulgurating, or otherwise cleaning up the ulcerating surfaces, and then applying autoplasmic or heteroplasmic flaps or skin grafts to the denuded area. It is sometimes possible to succeed in getting very large areas covered in this manner. It is obvious that the patient is far more comfortable afterward than would have been possible with an ulcerating open wound. And, as we have already said, these patients sometimes remain "clean" so far as the external cancer is concerned, perhaps dying of internal cancer without knowing, except in obstructive cases, that they have not been entirely cured of the disease. Internal cancer is, as a rule, a far more

removal of the projection of mucous membrane. Fig. 11-b shows the result, April, 1905. Of course, with such an extensive recurrent process it was impossible to do more than clean up the surface as nearly as could be done, and to give the patient the benefit, however doubtful it might appear to be, of palliative repair. This was done, and she was rendered far more comfortable for the remainder of her life than there is reason to believe she would have been had we left this large ulcerating surface uncovered.

In this case a heteroplasmic flap was used, taken from a cadaver, a method first suggested by Colrat, in 1871.

It is well to note, in connection with the use of tissue from the dead, that extreme care must be exercised in the selection of the subject, in order to obviate the possibility of the transmission of disease from the dead to the living. It is understood that autoplasmic flaps, either of skin or deeper tissues, "take" better than others. For many reasons, however, it is sometimes impossible to obtain such flaps or grafts, in which event one must resort to other measures. As a general rule, when autoplasmic material is not available, heteroplasmic tissue from the living can be utilized. There are cases, however, especially of very large defect such as existed in Case XI, when sufficient tissue cannot be obtained

to cover the denuded surface. It is then permissible, under proper precautions, to use flaps from persons recently dead of traumatism.

My first experience with grafts of this kind was in 1895. The patient, a Bohemian girl of about



Fig. 11.

Fig. 11a.

CASE XI. Fig. 11.—Angioma of face. Fig. 11a.—Showing condition after removal of angioma, and before removal of redundant tissue.

twenty-eight years of age, had sustained a very severe burn over the entire trunk, front and back, and on the arms. The burns were of such severe degree as to cause death in the usual case, but with the exercise of extreme care her life was saved. It was necessary to keep cutting down granulations, and for a time it seemed impossible to cover over the burned areas. Autoplastic grafts were repeatedly tried, but would not "take." Finally, one day, a strong robust young man was brought into the hospital immediately after sustaining a severe, and what proved to be a quickly fatal accident. He had no friends, it seemed, and the body was unclaimed. Autopsy revealed the fact that the man was in perfect condition aside from the accident. Skin was taken from his body to cover the denuded areas re-



Fig. 11b.

Fig. 11c.

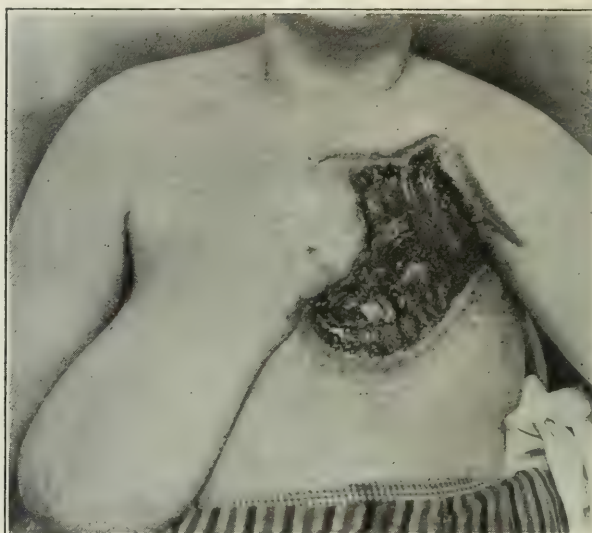
CASE XI. Fig. 11b.—Condition after removal of redundancy and shaping of lip. Fig. 11c.—Patient when eleven years old, taken a short time before his death from appendicitis.

sulting from the burns which the girl had sustained. Sixty-five per cent. of the grafts took, the entire surface was covered, the girl left the hospital in a few months, perfectly well, and was well when last heard from.

In the case of young or otherwise healthy persons, particular care is necessary, as we have said, in the selection of the dead subject from which grafts are taken, and cadavers are to be resorted to only when

all other sources have failed.⁷ Care is to be exercised also in cancerous patients, though in very rare instances it may, with the patient's consent, be permissible to take seemingly greater chances than would be advisable in other classes of patients.

In fact, in these very distressing patients with irremovable external cancer, one is sometimes impelled to resort to rather extreme measures in one's efforts to save suffering and to prolong life. The human body, aflame with what has been called the "red plague," may be compared with the house on fire. Extreme measures must often be employed in either case in order to extinguish the flames, or to



CASE XII. Fig. 12.—Recurrent cancer of pectoral region, following cancer of breast. Autoplastic palliative repair.

hold them in check. When the signal comes to the fire department to extinguish flames which are about to destroy a house, the firemen go prepared to tear down walls, if need be, to pull up floors, and otherwise to demolish things in order to save the house from complete destruction by the flames, and to prevent the breaking out anew of the fire. When their work is finished, the plasterers, paper hangers, and



CASE XIII. Fig. 13.—Extensive recurrent cancer involving entire chest and upper abdomen. Heteroplastic palliative repair (flap from cadaver).

⁷Skin of amputated parts from those without disease may be used.

other repair men are summoned to reconstruct the damaged parts and otherwise conceal the destructive inroads of the flames.

So, with the surgeon who is summoned to check the ravages of the physical fire, cancer. Sometimes he must do what appears to be needlessly destructive work in order to find and destroy every vestige of the devastating element. Sometimes walls of bone and flesh must be cut apart in order to find and subdue the foci of flame, metastases, which menace the bodily mansion. When all this is accomplished, and the destructive agent is under control, he must, like the plasterer and the paper hanger, repair the external evidences of demolition.

Thus, in many instances, patients who would be left to the fate of utter destruction by the fire of cancer, or who would be doomed to go through the remainder of life with disheartening disfigurement, may be made fairly comfortable and presentable by means of restorative and palliative repair.

34 GRAMERCY PARK.

SPLENECTOMY.*

Review of Literature; Report of Personal and Other Cases.

By A. A. KERR, M. D.,
Salt Lake, Utah.

The indications for splenectomy are: 1. Injury or prolapse. 2. Certain cases of movable spleen. 3. Sarcoma or lymphosarcoma in the early stages. 4. Simple hypertrophy, with or without cirrhosis. 5. Cysts. 6. Hydatid diseases. Localized tuberculosis of the spleen. 7. Splenic anemia with splenomegaly.

Dr. Allen B. Kanavel, in June, 1910, reported a series of experiments on splenectomized dogs, demonstrating "that while repair of broken bone is apparently delayed slightly, for practical purposes we cannot attribute ultimate nonunion to the loss of the spleen." His conclusions were: "The removal of the spleen when it is ruptured interferes slightly with the repair of any fracture, but not sufficiently to contraindicate its removal if the exigencies of the case demand it: On the other hand, if it can be sutured with safety to the patient it should be done. . . . Splenectomy results in impairing the regenerative power of bone in varying degrees in various elements, having in general a more marked effect upon the medulla, but in individual cases this may be but slightly affected, while the other elements may be more seriously affected. In other words the effect is probably the result of the general change in the system rather than any specific effect upon the bone."

Contraindications. As a person can live in comparatively good health without a spleen, provided that his other organs are in a healthy condition, as has been demonstrated by a number of surgeons, it is probable that in the future, surgical diseases of this organ will be more promptly recognized and treated accordingly. In leucocythemia, the splenomegaly being part of a general systemic condition, splenectomy is contraindicated.

Some diagnostic considerations with regard to splenomegaly. More care than is usual should be taken in examining and outlining the spleen and determining its size, by percussion and palpation. The enlarged spleen is sometimes mistaken for an enlarged left lobe of the liver, and in cases where it extends down to the pelvis for some pelvic tumor. If one can feel the edge or notch of the spleen, it is easy to determine an enlarged spleen, but sometimes it is impossible definitely to outline the organ. Pressing the organ forward and toward the median line may assist in bringing the anterior notched portion so that it may be palpated.

Dilating the colon with air would assist in determining the location of the kidney, which would lie posteriorly. The position of the kidney, especially if injected with colloidal silver, may be outlined with the x ray. Omental tumors, as well as gastric carcinomas, may be mistaken for tumors of the

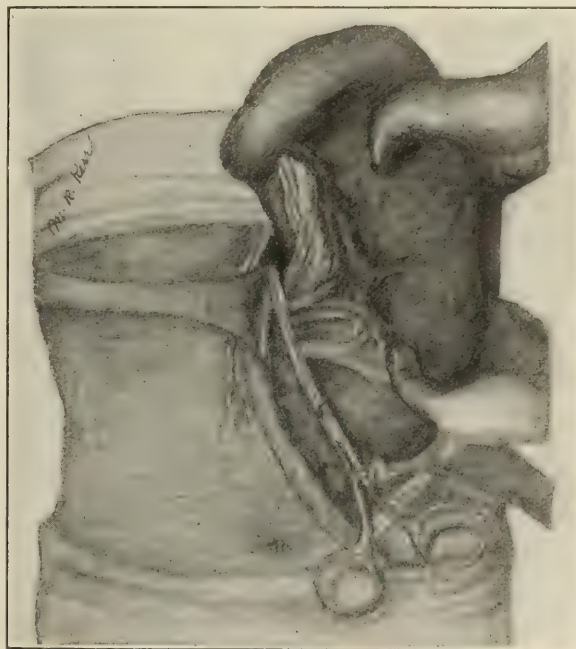


FIG.—Illustrating the method of applying the intestinal clamp in controlling the blood supply of the spleen while performing splenectomy (after M. J. Mayo).

spleen, as occurred in the experience of H. E. Giffin, of the Mayo Clinic. "While a slight enlargement of the spleen seems to occur without harm, it must also be remembered that splenic enlargement sometimes precedes the development of anemia by several years—splenic anemia—and the spleen must be looked upon as a possible cause of future trouble, especially if it be of considerable size. Its removal may then be considered." (Giffin.)

Tuberculous splenitis may occur without evidence of tuberculosis elsewhere. To exclude syphilis, a Wassermann reaction should be made in any case of doubt. An enlarged spleen frequently occurs with syphilitic cirrhosis of the liver. Congenital syphilis of the spleen is often found in children. Bush reports forty-two cases of cystic spleen. Carcinoma of the spleen is secondary and uncommon. The blood examinations are pathognomonic of lymphatic and myelogenous leucemia.

*Read before the Western Surgical Association, December 18 and 19, 1914.

Splenic anemia, a disease of unknown origin, with progressive splenomegaly, an anemia of secondary type generally with leucopenia, some tendency to hematemesis, and a secondary cirrhosis of the liver, seems to be a definite entity.

Eighteen out of twenty-seven splenectomies at the Mayo Clinic were for splenic anemia. Dr. Louis B. Wilson summarizes the results of the pathological study of eighteen spleens removed from 1905 to 1912 at the Mayo Clinic, the clinical diagnosis being splenic anemia:

1. In each spleen there was hyperplasia of one or more of the constituent tissue elements. In two spleens the lymphoid tissue was so markedly overgrown as to suggest a diagnosis in one of lymphoma and in the other of lymphosarcoma. In three spleens the proliferation of the endothelium of the venous sinuses was most predominant. In thirteen spleens the process was a chronic diffuse one, involving all tissue elements.

2. While any case of primary splenomegaly may begin as an overgrowth of the lymphoid tissue or of the endothelium, in the ordinary course of events a secondary overgrowth of the stroma of the gland will later appear, accompanied by degeneration of the lymphoid or endothelial elements.

3. The largest spleens are those in which the lymphoid or endothelial hyperplasia is greatest. As the connective tissue overgrows, the spleen may be reduced in size, owing to reduction in the amount of lymphoid and endothelial elements.

4. The roughness of the exterior of the spleen is in direct proportion to the development of connective tissue within it.

5. In primary splenomegaly a secondary cirrhosis of the liver is associated with great connective tissue overgrowth and degeneration of the pulp of the spleen.

6. From what we know of hyperplasias in other organs, it would seem unnecessary to assume hypothetically the presence of three different causes for the production of the three primary histological types of splenic anemia.

7. The histopathological picture presented in all three types of spleens from cases of primary splenic anemia, seems to be in complete harmony with the hypothesis of the presence of a slowly acting local toxin.

8. There are certainly spleens from clinically doubtful cases of splenic anemia which the pathologist cannot distinguish from the spleens from clinically undoubted cases. Yet it must be conceded that the findings of a great hyperplasia of one in all of the tissue elements of the spleen without other diagnostic lesions elsewhere in the body, is strong corroborative evidence of the clinical diagnosis of splenic anemia.

Dr. J. F. Bennie, of Kansas City, Mo., in a personal communication to the author, reports the following case:

CASE I. Female, aged eighteen years; seen in country, November 29, 1910. History of appendicitis; eight weeks ago pain and tenderness over gallbladder. Fever; vomiting at first; jaundice. Six weeks ago, tenderness left hypochondrium. Much abdominal distention; blood count (doubtful accuracy); 8,000 whites, reds normal; 80 per cent. hemoglobin, 80 per cent. polymorphonuclears. Patient extremely pale. November 30, 1914. Liver enlarged, spleen more so. Tenderness over gallbladder and spleen; moderate jaundice. Appetite poor, only takes liquid food; hemoglobin 40 per cent., whites 22,000 (poly. x), temperature at night to 102° F. December 8th. Red cells, 3,400,000. Stained smear showed all cells normal. January 8, 1911. Much better. Considerable pain over spleen and epigastrium. January 10, 1911. Laparotomy. Gallbladder small, difficult to find. No stones; liver O. K.; pancreas enlarged. Spleen large and adherent to everything. Splenectomy with much difficulty. January 28th. Hemoglobin 90 per cent. Reds, 4,000,000; whites, 16,000. Increased number transitional, otherwise O. K.

Pathological report of spleen: Interstitial splenitis. Patient was later reported well, married, and to have had a family.

CASE II (Dr. D. N. Eisendrath; personal letter). Diagnosis: Perisplenitis, malarial hypertrophy of spleen; splenectomy, ileus from adhesions. Tailor, aged twenty-seven years, one year before he was seen, first noticed dull continuous pain in the left flank, which would get quite severe, five or six times a day. When patient walked this would radiate to the scrotum. The patient had several mild chills three or four months ago, no vomiting but slight nausea at times. Patient urinated very freely with a slight pain during act; amount and color seemed to be about normal. No history of jaundice. Patient lost twenty pounds in the last year. Had malaria when sixteen years of age; typhoid pneumonia when very young. Examination revealed heart and lungs negative. Abdomen: Tender area below the left costal arch and it was thought that a small mass could be felt there. Cystoscopic examination revealed a large collar shaped prostate and a trabeculated bladder. The ureters could not be catheterized. X ray examination of the kidneys and ureters was negative. Patient seemed to localize his pain entirely to the left costal arch from which it radiated downward. There was some tenderness here. The spleen itself could not be palpated. Abdomen otherwise negative.

On August 24, 1908, left rectus incision; abdomen opened; spleen found considerably larger than normal; capsule greatly thickened with a moderate number of adhesions, binding it to the stomach and to the under surface of the diaphragm. Gastrosplenic omentum attached over large surface of the spleen. There was an almond shaped yellowish area of perisplenitis. Kidney palpated through this incision and found negative. The case being diagnosed as one of chronic perisplenitis, removal of the spleen was decided upon.

Some weeks later, symptoms of intestinal obstruction developed and laparotomy was performed by Dr. L. L. McArthur. Dense adhesions were found and a volvulus of the small intestine well in the middle portion of the ileum, a twisting on the vertical axis of the intestine. The intestine involved in the volvulus seemed normal, but in the small triangle formed at the base of the mesentery by its twisting was found a kink of the small knuckle of the intestine, the lumen completely obliterated. Below this kink the intestine was collapsed, and above it dilated. Thrombus and knuckle of gut easily reduced. Further exploration made and above to the left an old fibrous band incised and yet the stricture remained. Portions of the intestine just distal and proximal clamped with intestinal clamps and incision through gut walls, and anastomosis performed, using continuous waxed silk for suture material, first suture being a continuous Lembert before incision was made; second suture a continuous suture passing completely through intestinal wall uniting free edges. Patient alive.

CASE III (Dr. D. N. Eisendrath). Rupture of spleen. Patient, male, aged twenty-seven years, was admitted to the services of Doctor Andrews in the Cook County Hospital, Chicago, in December, 1906, with a diagnosis of crushing injury to the right hip. In the absence of Doctor Andrews I was asked to operate in the case. The constriction had been applied upon the thigh within five minutes after the accident, and the patrol officer said that but little blood had been lost. The patient met with the injury in the following manner. He was caught by the belting in a factory and carried upward to the ceiling. Examination of the thorax showed a fracture of the ninth and tenth ribs; a moderate amount of emphysema around it. I was attracted by the extreme pallor and almost pulseless condition of the patient. He was thirsty, and the ingestion of considerable quantities of liquid seemed to make but little difference in the condition of the pulse; the same was true of stimulation. Examination of the abdomen at this time was absolutely negative. There was no tenderness nor rigidity nor any evidence of free fluid. Patient was anesthetized, and an exploratory incision made over the left rectus on account of a possible injury of the spleen. Upon opening the peritoneal cavity, a considerable amount of free fluid escaped. Further examination showed there had been a laceration of the spleen, extending from the lower border up to the hilus and also cutting the lower border in two. It was quickly extirpated, and while this laparotomy was being performed the thigh was amputated. For a time after splenectomy the patient seemed to pick up, but the condition soon became worse again and he

died about one half hour later. No autopsy was performed, so it was impossible to state whether any other abdominal viscera were injured.

Dr. John H. Gibbon, of Philadelphia (by C. H. Musser, M. D.), published an interesting case of cyst of the spleen (*Am. Jr. of the Medical Sciences*, October, 1911, and a recent personal communication). The patient, an Irish woman aged twenty-five years, was rather anemic looking. The abdomen showed the presence of a large tumor, most prominent in the epigastrium, and extending down to two inches above the anterior superior spine. The blood count was: Reds 4,360,000, whites 9,400, hemoglobin seventy per cent.; the differential count showed polymorphonuclears sixty-five per cent., lymphocytes twenty-nine per cent., mononuclears two per cent., transitionals one per cent., eosinophiles three per cent. Doctor Gibbon, on opening the abdomen, found a large cyst adherent to the diaphragm and surrounded, except in the upper part, by splenic tissue.

TECHNIC.

The technic of splenectomy is briefly as follows: Place the patient in an exaggerated Mayo-Robson position or marked lordosis. Make an incision through the left rectus, or Dr. A. D. Bevan's shaped incision. Explore region of spleen; if adhesions are present, doubly ligate and cut between the adhesions to the omentum, the colon, and the abdominal wall. Adhesions to the diaphragm may give considerable trouble. If extensive, they may render the operation very dangerous. By the use of a large gauze pack the oozing can generally be controlled. The spleen is now free, except for its true pedicle. Deliver from the abdomen first the inferior pole and then the superior pole. When it is extremely large as in one of my cases (weighing fourteen and a half pounds), it is necessary for an assistant to support the organ after delivering it from the abdomen. Apply two intestinal clamps (covered with rubber tubing), one from below and if convenient, one from above the pedicle. Insert interlocking sutures along the pedicle. Tie the splenic artery and veins separately. Loosen the clamp slowly so as to be able to grasp promptly any branches that might still be oozing. As a further protection against hemorrhage, I put in a continuous running buttonhole stitch across the pedicle. This effectually prevented all oozing.

The tail of the pancreas approached close to the hilum of the spleen in one of my cases, and care was necessary to prevent grasping it in the pedicle clamp. "The splenic vessels may be reached, not only through the gastrosplenic, but through the gastrohepatic, or the gastrocolic omentum, or even from below upward through the transverse mesocolon." With sutures, close all the wounds made in the posterior peritoneum, and if the gastrosplenic omentum was divided separately, suture its stump to the posterior abdominal wall. Close the abdomen. The accompanying illustration shows partially the method of clamping the pedicle of the spleen with intestinal clamp protected with rubber tubing.

CASE IV (personal). Man, aged thirty-two years, single, laborer; native of Assyria, born about 100 miles from Jerusalem. Patient was seen first in May, 1913, in consultation with Dr. A. N. Minear. Family history: Father

died about forty years of age of stomach (?) trouble. Mother died at fifty-two years of age of intestinal obstruction (sick twenty-four hours). Patient came to America in 1907. Consulted Dr. A. N. Minear in 1912. Complained of weakness, anorexia, and pain in region of spleen. Was treated medically for about six months with no permanent relief. The blood examination showed an anemia and excluded leucocythemia. Splenectomy March, 1913.

An incision six inches long extending through the left rectus from a point four inches above to two inches below the level of the umbilicus was made; the abdomen opened and the spleen exposed. The lower pole of the spleen was delivered and then the upper pole was brought out through the incision. The pedicle of the spleen was clamped with intestinal clamps protected with rubber tubing. A series of interlocking stitches were placed through the pedicle. The splenic artery and branches were ligated and the spleen was removed. A continuous chain stitch was inserted in the stump of the pedicle. The external incision was sutured in the usual manner.

The weight of the spleen was two pounds. Microscopically, the splenic tissue showed lymphoid hypertrophy but no malignancy.

A blood examination made November 11, 1914, about twenty months after operation, showed: Red blood cells, 4,300,000; white blood cells, 8,600; hemoglobin, eighty five to ninety per cent. The patient says he feels well and is able to work regularly.

CASE V. June 11, 1914, I was called to Idaho Falls, Idaho, to see a patient of Dr. William Kinnaird and Dr. S. S. Fuller in the latter's private hospital. The patient was a woman, aged thirty-three years, who was in a very critical condition. She had had an exploratory abdominal incision made a short time previously, and it was thought advisable not to attempt to remove the tumor from which she had been suffering. An examination showed a large tumor in the left side of the abdomen, extending from the ribs down to the pelvis. Careful palpation showed the tumor to have the characteristics of an enlarged spleen. As the patient's condition was gradually getting worse, a splenectomy was performed.

The technic was similar to the previous case, except that in this case there was extensive omental adhesions, which had to be doubly ligated and cut before it was possible to free the spleen. Owing to its extremely large size (weighing fourteen and a half pounds), an assistant had to support it while the bleeding was controlled. The tail of the pancreas extended to near the hilum of the spleen, so it was necessary to apply the pedicle clamps close to the body of the spleen in order to avoid injury to the pancreas. The patient was in fairly good condition on leaving the operating room.

I did not have an opportunity to observe her condition, except for a few hours, as I had to leave for Salt Lake that evening. A later report from Dr. William Kinnaird showed that she did well for about one week, then began to develop a high temperature. She finally lapsed into a semicomatose condition, which lasted till June 24, 1914, when she died. Autopsy showed no signs of infection in the abdominal cavity, but the pancreas was much enlarged and hard and Doctor Kinnaird believed she had an acute pancreatitis. The pathological report was hyperplasia, round cell infiltration, no tuberculosis and no malignancy (Doctor Schulte).

The author desires to thank the following doctors

for contributing interesting information in regard to the subject of splenectomy: Dr. W. J. Mayo, Rochester, Minn.; Dr. Allen B. Kanavel, Chicago; Dr. J. F. Bennie, Kansas City, Mo.; Dr. M. L. Harris, Chicago; Dr. Daniel Eisendrath, Chicago; Dr. John H. Gibbon, Philadelphia; Dr. Arthur Dean Bevan, Chicago; Dr. Norman Kerr, Chicago; Dr. A. N. Minear, Salt Lake, Utah.

A THEORY OF THE MECHANISM OF GASTRIC AND PAIN CRISES IN TABES.

A Preliminary Note.

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Impressed by numerous instances in which the Förster-Küttner operation (section of the posterior thoracic nerve roots) failed to give relief in the gastric crises of tabes, I began, in February, 1910, experimental and clinical studies of the subject. Full reports of these studies, which are still in progress, will be made in the near future. In the meantime the following theory based on the results obtained is herewith published as a preliminary note.

Without regard to the merits of the leading views as to the site of the primary lesion in tabes, viz., meningitis, constricting the dorsal root fibres as they enter the cord (Redlich and Nageotte), or primary sclerosis of the proximal poles of the dorsal root ganglia, the nature and location of the lesions under either view is such that impairment of function in the afferent arcs is inevitable. The resulting block in conduction along the dorsospinal nerve roots and their analogues in the cranial nerves must be regarded as a fundamental factor in the mechanism responsible for the symptoms encountered in tabes. The severe lightning pains that occur from time to time point, however, to temporary permeability in the obstruction. This permeability can result only from lowered resistance (intraspinal or at the site of the lesion) or from increased potential (altered electrical condition) in the axones or nerve cells distal to the lesion, or from spontaneous discharge of neurones situated along the afferent paths central to the lesion, i. e., within the cord or brain. As the pains are intermittent and their area of reference at the periphery sometimes very small, e. g., the size of a nickel, the permeability of the block is evidently temporary and at times confined to individual neurones. Moreover, the nature of the lesion is such that spontaneous permeability of the block *per se* seems an impossibility. Hence the lowering of resistance, when such a thing occurs, must take place intraspinally, e. g., by facilitation or *Bahnung*, induction, or possibly by the action of salts acting like strychnine, tetanin, etc. Increased potential in the axones distal to the lesion may arise from painful and unusual stimulation at the periphery, e. g., by the galvanic needle, urethral sounds, exposure of the skin to cold, and possibly from the rested (anabolic) state of dorsal root ganglion cells.

Regarded from any standpoint, it does not seem possible that lowered resistance to the passage of impulses, whether this be intraspinal, or at the site of the lesion, can fully account for the causation of lightning pains or gastric crises; for strychnine did not induce attacks of gastric crises except when they were actually pending, and it was worthless in aborting both pain and gastric crises. Moreover, emotional excitement, although it might precipitate a pending attack of gastric crises, could not always initiate an attack, and it was inefficient in aborting existing attacks.

The drugs that were most successful in aborting attacks of gastric crises, e. g., morphine, apomorphine, pilocarpine, and eserine, lowered the threshold along the paths most intimately related to the vomiting mechanism, viz., the vagal and glossopharyngeal arcs, while strychnine, emotional excitement, etc., lowered the resistance in the spinal arcs in general. It was remarkable, however, that the drugs which aborted the attacks of gastric crises were, with the single exception of morphine, inefficient against pain crises, and while effective in temporarily aborting attacks of gastric crises, they could not by any means *terminate* attacks, which often persisted for weeks and months (with temporary short lived intermissions) in spite of their daily administration. The conclusion is inevitable that something more than lowered resistance is necessary for the development of gastric crises and lightning pains.

The similarity between gastric crises and epileptic seizures is striking. In both instances from time to time, explosive attacks occur which, after lasting for a longer or shorter period, leave the patient in a comparatively normal state between attacks. In severe gastric crises when the attack is aborted, the patient usually drops into deep sleep as after an epileptic seizure; moreover, as in epilepsy, the attack is presumably the result of a general discharge of nervous energy from the cells of the cerebral motor cortex, it may be assumed that the gastric and pain crises of tabes are in some way the result of discharges of nervous energy occurring along the afferent vagal and glossopharyngeal paths in gastric crises and along the somatic spinal paths in pain crises.

The nerve impulse is now regarded as a negative wave of animal electricity passing over the axis cylinder and accompanied in its passage by arrangement of the particles of the nerve substance in an electric series, i. e., of positives and negatives thus $+ - + - +$. Without such an arrangement of alternate positives and negatives the impulse or current could not pass. Thus if two adjacent particles were both negatives or positives, there would be a block in conduction. It has been shown that the axis cylinder in a state of rest contains potassium so combined with a colloid material from the axis cylinder, that dissociation takes place only on injury or stimulation of the nerve substance; and when either of these occurs the potassium can be found liberated as a positively charged ion, while the colloid or negative ion passes possibly into the gel condition. After the passage of the nerve impulse the potassium and the colloid substance again reunite to form an electrically neutral molecule.

It is probable that all nerve cells are constantly

discharging periodical tonus impulses through their related axones. Thus the cells of the anterior horns of the cord send tonus impulses at the rate of about ten a second to the related muscles. Similarly the respiratory centre discharges automatic impulses which carry on the function of external respiration even after severance of all afferent paths (chemical stimulation through hydrogen ions in the blood). The centres in the cerebral motor cortex normally exert an influence (inhibition, etc.) on the spinal neurones, and the centres in the cerebellum and basal ganglia send constantly automatic impulses to the spinal neurones. (Compare decerebrate and decerebellate rigidity, etc.) In all these instances, however, only motor cells are involved. But as all reactions can be reduced to the reflex (or its analogue the tropism in organisms not possessing a nervous system), it is evident that the afferent arcs and their nerve cells play no small part in many processes that are apparently purely automatic. Thus in a decerebrate animal, section of the dorsal spinal nerve roots relaxed the rigidity in the related muscles (Sherrington).

It seems, therefore, that the afferent spinal arcs are constantly sending impulses into the spinal cord. Whether these impulses originate automatically in the dorsal spinal ganglion cells, or are exclusively evoked by surrounding influences such as contact with the air, etc., may remain a question, but the necessity of the ganglion cell to maintain the continued integrity of the afferent arcs is indispensable. It has been shown that the nerve impulse need not pass through the dorsal root ganglion cell, since it is possible for impulses, after removal of the cell, to pass, for a time at least, into the cord presumably by skipping directly from the distal to the proximal axone process. But, as before stated, the ganglion cell is indispensable to the continued integrity of the afferent arcs and consequently to the mediation of afferent nerve impulses. It has been shown that the dorsal spinal ganglion cells are, like all nerve cells, capable of fatigue and regeneration. Hence it may be assumed that the condition of these cells influences conduction. It has also been shown that, after section of the distal axone process, the cell undergoes retrogressive degeneration while after section of the proximal axone process (dorsal nerve root), the cell does not degenerate. Hence the lesion of tabes leaves many or all of the cells in the dorsal root ganglia, and in their analogues in the cranial nerve ganglia, not only comparatively intact for a long time, but actually in a state of heightened nutrition, i. e., rested. This state of heightened nutrition in the dorsal root ganglion cells and in the vagal and glossopharyngeal ganglion cells plays the fundamental role in the discharge of those nerve impulses that are responsible for the gastric and pain crises of tabes.

The possibility of the cells of the neurones of the second order within the cord sending brainward automatic or other impulses which could evoke sensations of pain and other reactions, must also be considered, since section of the appropriate dorsal spinal nerve roots does not necessarily always relieve pain, e. g., in an amputation stump (Knapp).

As, however, section of the dorsal nerve roots usually relieves pain referred to the related sensory

areas, and as there are occasionally some stray afferent paths in the anterior nerve roots, it is highly probable that in tabes, automatic or other discharge of the neurones of the second order plays but a subordinate part, if it play a part at all, in the causation of gastric crises.

It seems, therefore, that high potential on the distal side of the lesion is the primary, fundamental cause of gastric and pain crises. But inasmuch as axone processes do not readily exhibit signs of fatigue, whereas the cell bodies in the dorsal spinal ganglia readily show marked signs of fatigue, it must be concluded that the ganglion cells are the chief factors in causing the high potential distal to the lesion. The precise manner in which this storing of electrical energy occurs is a question. It may be simply the result of a banking of energy in the ganglion cells caused by a temporary break, partial or complete, in conduction at the site of the lesion, or it may result from a more or less permanent dissociation of the positive (K) and negative (colloid) ions. It is possible that at times an excessive amount of sodium or other salts in the blood might, by osmosis, tend to displace the potassium ions from their associations with the colloid ions of the neurone, and in this way tend to, and perhaps actually, set in motion nerve impulses. Compare the results of Matthews and Brown following large amounts of sodium salts given hypodermically.

The gastric and pain crises of tabes seem, therefore, to be primarily the result of a banking of potential in the neurones distal to the lesion, i. e., in the ganglion cells. This banking of potential goes on with greater or less rapidity, depending on the activity of the metabolic processes, the character of the food, mode of life, atmospheric conditions, the degree of completeness of the block in conduction at the site of the lesion, etc., until the obstruction is no longer able to prevent the passage of impulses inward toward the cord. Then individual neurones, one or any number at a time, commence discharging, and impulses reach the brain, causing pains referred to the peripheral areas of distribution supplied by the discharging neurones. In the case of the vagal and glossopharyngeal neurones the afferent impulses impinge with greatest effect upon the vomiting centre, causing nausea, vomiting, and the distress that accompanies them. After repeated successive discharges the cell bodies become fatigued, the potential falls below the point necessary to force a passage at the site of the conduction block, and the attack ceases for a time.

As all the neurones, however, do not discharge simultaneously, since some gather or retain their potential while others are losing it, the attacks of gastric or pain crises do not pass off immediately, except in cases where attacks of gastric crises are temporarily aborted by such agents as morphine, pilocarpine, apomorphine, eserine, etc., and here the neurones are, to a greater or less extent, discharged simultaneously soon after the administration of the drug, so that it takes some time, varying from two to forty-eight hours, before the neurones can gather sufficient potential to force the block again. Where the attack has lasted some time, and in some instances where only a certain limited group of neurones are fully, or almost fully, and equally

charged, the administration of morphine or of sodium salts may discharge the accumulated potential so effectively that the regathering of potential may take a long time. In such cases one administration of a remedy may permanently abort an attack. In reality, however, remedies seldom cause complete suspension of the attack, but merely affect the simultaneous discharge of those neurones in which the potential is at, or near the point of spontaneous discharge. The attack really comes to an end only when the potential in all the ganglion cells has become so reduced that it will take a period of some length before any of the neurones can acquire sufficient potential to force the block. The duration of an attack of gastric or pain crises depends, therefore, rather upon the *simultaneity and equality of accumulation of potential* rather than upon the number of neurones involved. Thus if fifty neurones are ripe for discharge today, fifty for tomorrow, and so on, by the time the last fifty of the series have been discharged, the first fifty are again ready for discharge. It is this lack of simultaneity of accumulation of potential, due in the first instance to the unequal degree of block in the separate neurones caused by the lesion, that is responsible for the prolongation of the attacks. It is probable that the greater the number of neurones involved in the lesion, the greater will be the lack of simultaneity in the accumulation of potential. Variation in the degree of block in the proximal axone stems, e. g., by lowered intraspinal resistance, is also perhaps a factor. It is, however, merely a secondary factor as regards the causation of the attacks, but it is of considerable importance in hastening the onset and termination of attacks. Emotional excitement, strychnine, etc., may precipitate a pending attack by lowering intraspinal resistance. Morphine, pilocarpine, apomorphine, and eserine temporarily abort an attack of gastric crises by lowering intraspinal resistance in the vagal arcs, thereby precipitating an immediate simultaneous discharge of all the ripened, or nearly ripened neurones, which would otherwise go on discharging repeatedly and irregularly for an indefinite time. Drugs of the belladonna group have the opposite effect and invariably prolong the attack by retarding the neural discharge.

In prolonged attacks, and where an attack ends spontaneously, lowered intraspinal resistance, e. g., by facilitation or *Bahnung*, spinal induction, etc., help materially to terminate the attack by aiding in the immediate discharge of ripened and nearly ripened neurones. General exhaustion and fatigue of the body as a whole, as well as starvation, also aid in the spontaneous termination of an attack by preventing rapid reaccumulation of potential.

In the light of this hypothesis the irregular variations in the appearance, duration, and severity of attacks of gastric and pain crises become intelligible. The temporary beneficial effects observed in pain and gastric crises from treatment such as by urethral sounds and instillations, by painful puncture with the galvanic needle, the administration of various drugs, etc., become also capable of rational explanation. All such measures merely facilitate the simultaneous discharge of ripened or nearly ripened neurones, while the desideratum of radical treatment must aim at the prevention of accumulation of

potential or permanent effective interruption of the afferent discharges.

Certain remedies, such as warm baths, rest, etc., tend to prevent the discharge of incompletely ripened neurones and hence give temporary relief at times.

This hypothesis also lends a ready explanation of the remarkable changes in severity which the attacks of gastric and pain crises commonly undergo. Thus a patient with severe gastric crises of the intermittent type may have his major attacks replaced by a mild daily attack of nausea or vomiting or both, which appears in the early morning and passes off after a short time, leaving the patient comfortable for the rest of the day. A similar change occurs in pain crises. In both conditions the change is to be attributed mainly to an increase of the lesion, causing more complete (numerical) and impermeable blocking in the nerve roots, as well as to impairment in the nutrition of the neurone bodies incidental to interstitial changes and lowered metabolic activity generally. Similarly, the marked rise of blood pressure which I have observed to accompany gastric and pain crises, may become diminished or disappear altogether in cases of long standing. This again is due to more complete blocking of the afferent paths and to general nutritional impairment of the vasomotor mechanisms.

Though the vomiting centre is in relation with various receptive areas all over the body, it is most intimately related, anatomically and physiologically, to the areas of distribution of the vagus and glossopharyngeal nerves within the alimentary canal. Hence, although violent stimulation of any nerve may cause nausea and vomiting, the characteristic and profound disturbances observed in the true primary gastric crises of tabes, result only from discharges of potential in the afferent vagal and glossopharyngeal arcs. Hence section of the thoracic dorsal spinal nerve roots as done in the Förster-Küttner operation, cannot be expected to cure true gastric crises, although it may alleviate for a time minor gastric crises of secondary origin (bastard crises), i. e., gastric crises due mainly to somatic afferent impulses. The paucity of demonstrable afferent sympathetic paths in the posterior nerve roots perhaps helps to a better understanding of this. The absence of efficient, purely reflex vomiting, which I have found to obtain in true primary gastric crises, may be accounted for by the numerous irregular afferent discharges occurring simultaneously or in rapid succession in various unrelated or antagonistic arcs. Thus the vagus carries both afferent and efferent inhibitory fibres, for the gastric musculature and simultaneous discharge along numerous functionally antagonistic or even indifferent arcs, could beget only irregular and incoordinated action in the effector mechanisms of vomiting.

On November 20, 1911, Dr. Alfred S. Taylor, of New York, operated on a patient of mine, W. C., suffering from true primary gastric crises. All the symptoms and signs pointed to the right vagus as the chief seat of the trouble. Accordingly this nerve was attacked, but the patient succumbed. The pathological findings showed marked involvement of the vagal roots. Another patient, C. F., under observation for the past two years in my service at the Neurological Hospital, had his thoracic nerve

roots cut one year ago, but without more than such temporary cessation of his attacks as might be accounted for by the anesthetic and the trauma incidental to the operation. The details of these operations are reserved for the full report of my studies on the subject. I wish to acknowledge my indebtedness to Dr. Philip C. Knapp, Dr. J. J. Thomas, and Dr. William N. Bullard, of Boston, Mass., for information courteously and freely tendered as to the unsatisfactory results obtained by them with the Förster-Küttner operation. It was partly on account of these reports received by me early in March, 1911, that I decided to make more extensive studies in this subject.

244 WEST 101ST STREET.

WHAT ELECTROTHERAPY CURES.

BY HIRAM H. SEELYE, A. M., M. D.,
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The physician with an elaborately equipped office consisting chiefly of static machines, electric coils, high frequency appliances, x ray outfit, galvanic and faradic cabinets, electric light reflectors of high power, light bath cabinets, electric motor vibrator, high pressure nebulizer and ozonizer, and the thousand and one accessories to these, is often rendered momentarily speechless and incapable of an immediate reply to the first question almost invariably asked by a visitor at first sight of such an imposing and bewildering accumulation of therapeutic armamentaria, viz., "What do you use it for?" or "What do you treat with this or that particular piece?" "Almost everything," is the answer that most naturally is returned. For the list of ailments to be mentioned is so long that one scarcely knows where to begin. In broad terms the reply might well be, "Nearly all chronic diseases and a large class of acute ailments."

An agent which like electricity may be made to permeate the whole system, to stimulate the activity of every constituent cell of every organ in the body, while concentrating its energizing force on the part where most needed, is a remedial power of the widest application and of pronounced efficiency. Only those who have personally witnessed its phenomenal nutritional results can appreciate, or be convinced of its almost universal applicability in a vast variety of human ailments. Excluding to a degree those few disorders depending on the entrance from outside into the economy of a germ or poison which induces an acute toxemia accompanied with fever and the phagocytic efforts of the blood and lymph cells to neutralize the attacking microscopical invaders, nearly all other human ailments may be successfully combated by one or more of these electromechanical appliances if judiciously handled. By these means we are merely employing intelligently a force which, as has been shown by biological experiments, is always vitalizing and stimulating to the growth of animal and plant life. Parallel tests of the growth of vegetables, half of which were planted in a soil permeated by electrical currents and the other half in adjacent soil not so influenced, have shown a much greater vigor of

growth and size of crop in the former, and similar results have likewise been proved to follow parallel experiments on the young of animals.

Some concrete examples of this vitalizing property, as adaptable to the daily professional work of the physician, will be more convincing to the skeptic than many indefinite statements. So I will here present abridged histories of a few cases treated in my own practice.

CASE I. Mrs. R., aged twenty-two years, was brought to me emaciated, unable to walk, and for many weeks had not been in bed, having been obliged to spend all her time, night and day, struggling to breathe with her elbows supported on the backs of two chairs, while she constantly coughed and raised quarts of a thick, yellowish, putrid, foul smelling expectoration every twenty-four hours; no appetite, losing flesh rapidly, little sleep, and that only while in the above described sitting posture, given up by her attending physician, and expected by her family to die within a week or two. Physical examination showed such an abundance of loud mucous rales that no definite information as to the degree of lung tissue involved could be elicited. Large abscesses in both lungs were inferred. In addition to such palliative medicinal measures as seemed indicated, she was at once put under static and high frequency electrical treatment, chiefly with the glass vacuum body tube applied to the bared chest and back while seated on the insulated stool. After daily treatments of twenty minutes for a week, there was pronounced amelioration of all symptoms. The cough had lessened and the purulent secretion was greatly reduced, while she was now able to sleep the greater part of the night flat on her back in bed without the aid of opiates. Soon her color improved, and with increased appetite, she put on flesh, became stronger, and was able to walk a block or two in the open air. At the end of a month she had gained ten pounds in weight, was doing her regular housework, had no cough, no expectoration, and could walk a mile without shortness of breath or feeling exhausted. She was then feeling so well that she discontinued treatments. Six months later, I unexpectedly met her on a street car and failed to recognize her till she introduced herself. She was a fat, robust looking woman and said she was in perfect health, with no trace of her former lung trouble, and feeling stronger and better than ever before in her life.

CASE II. Miss B., a delicate looking girl, aged seventeen years, came to my office with her mother, complaining of increasing weakness, loss of flesh, night sweats, fever, cough, and the expectoration several times daily of pure red blood, from a tinge to several tablespoonfuls at a time. Her previous medical attendant had treated her for a supposed ulcer of the stomach, believing that the hemorrhages were from that organ, and had put her on a restricted diet, which by so much was reducing her already depleted health and strength. Examination showed an extraordinarily beautiful and sweet appearing girl, with hectic flush on cheeks, temperature 101° F., rapid pulse and respiration, with signs of congestion in both lungs, and giving the impression that her days here were numbered. The treatment at once instituted was similar to that described in Case I. Results were likewise as gratifying. In a few days improvement appeared in every symptom, and in two weeks was so marked that intervals of a day or two were allowed between applications. At the end of a month she had gained several pounds in weight, was eating heartily of every variety of food, was feeling as strong as ever, with no cough, hemoptysis, or fever, and was apparently completely cured. Soon after, she was married and blessed with a healthy baby in due time, and so far as I know has remained a healthy, happy woman ever since.

CASE III. Mr. H., a business man, aged forty-five years, was recommended to come to me as a last resort after his regular medical attendant had given him up as hopeless unless he underwent an operation of gastroenterostomy for the relief of a supposed stricture and occlusion of the pyloric orifice of the stomach. He was so feeble and emaciated that he could scarcely walk a hundred yards. Was starving for lack of nutriment, as he could retain no food for more than a few minutes. It would either come back almost at once, or if small quantities only of soups

or milk were sipped, it would remain in the stomach for a longer time and then all be violently expelled, tasting sour. There was never any hematemesis. This condition had been gradually growing worse for over a year, until now it was only a matter of a few weeks when he must die of starvation and exhaustion. Examination showed no tumor about the pylorus, but a perfectly flat abdomen, with no gas in the intestines, as no digested food had apparently entered them for a long time. Bowel action had been rare and scanty, consisting, probably, only of the debris of his own tissues. He looked like a living skeleton, all his bones protruding through his clinging skin. There were no signs of any disorder except such as would naturally attend starvation from inability to retain or digest food. He was at once placed supine on the operating chair, and then, and thereafter daily, the high frequency current was administered, mainly with a metal plate attached to the negative pole of the static machine placed under the back in the lumbar region, and the positive pole with the glass vacuum body tube applied over the stomach and abdomen, giving special attention to the pyloric region, and ending up with general applications as a tonic. He felt invigorated after each treatment, and in a day or two he noted an improvement in ability to retain liquid nourishment. After a week of treatment he could eat and retain some solid food, and began to feel stronger. After two weeks he only vomited occasionally and had put on several pounds of flesh. At the end of a month, when treatments had been reduced to only three or four a week, he had gained fifteen pounds, could walk a mile or more, was again attending to his regular business, and eating heartily with a good appetite every variety of solid food, and only vomiting at intervals of several days after overindulgence in some indigestible food. He kept up irregular treatments once or twice a week for another month, when, feeling cured and better than in several years, he ceased coming. The nervous and muscular exhilaration and buoyant feeling, so often following such treatments, was especially marked in this case. He would often enter the office despondent and exhausted, and leave, laughing and dancing like a schoolboy, ready for a long walk home. My diagnosis was constriction of the pyloric orifice by fibrous bands, probably caused by some primary irritation or ulceration at the outlet of the stomach. The treatment had probably softened and partially absorbed this adventitious material, thus relaxing the constriction and so allowing the stomach contents to pass into the lower digestive tract. The sequel confirms this theory. For, after about a year, I again met this man looking very much as when I first saw him, weak and emaciated. On inquiry, I found that the vomiting had returned, and he was only prevented from resuming his former method of treatment because of his depleted financial condition. On being assured that this need be no impediment, he gladly began another series of treatments. Whereas he was now in practically the same physical condition as at first, he soon responded favorably to the same measures as before, and after a month's experience was free from all his difficulties, except those of a financial nature, and feeling as well as ever. Though urged to resume occasional treatments at intervals for the next few months, he failed to return. Later, his financial embarrassments necessitating it, he removed to another locality, where within two years I learned he had died. I believe that two weeks' treatment every three or four months would have prolonged this man's life for many years, and I see no reason why complete and permanent recovery might not have been secured. A peculiar phenomenon frequently observed when giving these stimulating treatments was remarkably pronounced in this case, that is, he would invariably break out into a profuse general perspiration after about fifteen minutes of vigorous application of these high frequency currents. This man had not since boyhood been able to start a particle of moisture on his skin by any amount or kind of violent exercise, even in the hottest weather, while now, after every treatment, the perspiration was profuse, even dropping to the floor, notwithstanding he had been lying flat on his back without moving a muscle except as the surging treatments caused their vigorous contraction. This seems a sure indication of the active mechanical vibration, oscillation, and bombardment of all the protoplasmic cells making up the body, that is set up by these deeply penetrating electric forces. That a more normal action of the sweat glands was permanently induced was also here shown by the fact, that

thereafter any vigorous muscular exercise, even in the open air, would on this man induce a moisture of the skin heretofore never experienced.

CASE IV. A Spanish woman, aged forty years, could speak no English, so history was imperfect. On visiting her at her home, which she had not been able to leave for some months, I found a frail little dried up woman, who had suffered a long time from malnutrition, due to persistent diarrhea, irritable stomach with tenderness over the whole abdominal region, and symptoms suggesting a chronic tuberculous enteritis with peritonitis. She was reduced almost to a skeleton and had little expectation of recovery, as all internal medication had proved ineffectual. She was induced to drive to my office, a mile away, for daily electrical treatments, where the high frequency applications were employed in about the same manner as in Case III. The abdominal muscular contractions thus induced were often so painful that she cried out. General improvement soon set in, and at the end of a week she could eat and retain ordinary food, bowels became more regular, she put on flesh, became stronger, and despondency gave way to cheerfulness, vivacity, and a new enjoyment of life. By the end of two weeks she had become so active that she was able to walk the mile to my office and was free from diarrhea and all abdominal soreness. Frequency of treatments was progressively reduced, till at the end of a month she seemed as well as she had ever been and discontinued her visits, greatly gratified.

A remark is in order here apropos of the regulating properties of these high frequency currents on all of the physiological functions. It is the commonest experience for patients being treated for some special complaint to volunteer the information after a week or two, that since beginning treatments their bowels have become regular with daily action, whereas heretofore they had been habitually constipated. Periodical headaches have ceased, appetite returned, and in women the monthly irregularities have been corrected by continued treatments.

CASE V. This is an illustration of some of the facts just alluded to. Miss C., aged twenty-five years, a clerk in a store, had headaches almost daily, was constipated, irregular in her periods which were accompanied by much pain in the right ovarian region, with exacerbations of the headache, so that she was obliged to go to bed for a day or two each month. Was sallow looking, and lacking in energy. Two weeks' treatment, with applications to the abdominal region and general tonic measures, produced a complete reversal of conditions, and for months thereafter she would return for a few treatments only when there was an occasional recurrence of the neuralgic pains in head or ovary. She had improved appetite, strength, and color, and was greatly pleased with results.

CASE VI. Mr. S., aged fifty-eight years, carpenter, had to give up work because of growing feebleness, shortness of breath, constant diarrhea, and general nervousness. Was only just able to be about. I found he had a pronounced goitre, some exophthalmos, and a rapid, feeble, irregular heart action, and was very poorly nourished. I instituted high frequency treatments to the goitre and over the abdominal organs, especially over the region of the solar plexus. Improvement followed at once, and in three weeks he was able to resume work, was eating heartily, bowels acting regularly, heart action slow, strong, and regular, goitre nearly disappeared, and he considered himself well. He would thereafter at intervals occasionally resume treatments for a few days, when feeling a little run down, till at last he seemed perfectly well with the goitre all gone.

CASE VII. Mr. K., laborer, aged forty years, was injured some three months earlier by the fall of a heavy beam on his right shoulder, breaking the acromion process and paralyzing the deltoid muscle. Examination showed a muscular giant, now rendered completely useless because his right arm was ankylosed at the shoulder joint so that only the slightest motion was possible, and that very painful. Being a poor man, dependent on his daily labor, his only hope for being again able to earn a livelihood was to break up and absorb the joint adhesions and put new life into the paralyzed deltoid. This I attempted to accom-

plish by the use of the various modes of static electricity, producing stimulation of nutrition and muscular action by sparks and high frequency applications. The results were most gratifying. With treatments from two to four times a week, he soon got freer action with less pain, and in two weeks was able to lift his hand to the top of his head and the opposite shoulder. In a month he was able to do light work, and soon after could handle heavy loads. Within two months his arm was as strong and symmetrical as ever, and he was again earning his former regular wages.

All the instances so far given are examples of what seemed to be disorders of metabolism or nutrition, which were corrected by the absorbing and stimulating properties of the electric treatments. A few examples of recovery from seemingly functional or temporary disturbances will now be recounted briefly.

CASE VIII. Mr. J. T., aged eighteen years, a mechanic, had intercostal neuralgia in region of the heart which had worried him for some weeks. After a few minutes' application of the vacuum tube over the afflicted area, he would be relieved for several hours. Treatments of ten minutes daily for a week completely cured him.

CASE IX. Mr. P. W., aged twenty years, an excessive smoker and coffee drinker, complained of lack of energy, nervousness, with constant tremor of the hands, and quick irregular heart action. As these symptoms seemed largely due to his excesses, the coffee and tobacco were ordered to be reduced, and general static treatments instituted. In a week all these symptoms disappeared and he felt as fit for work as ever.

CASE X. Judge B., aged seventy-two years, was greatly troubled with insomnia. Could not go to sleep for hours after retirement and awoke after short snatches of sleep many times in the night. After every treatment late in the day with static insulation, the head breeze, etc., he fell asleep promptly after retiring, and usually slept most of the night without waking. After about a week the treatments were discontinued, but the good effects persisted and he felt more rested and energetic than for years. Most patients after treatment with any of these static currents remark on the sedative qualities, and feel drowsy or sleep more soundly than before.

CASE XI. Dr. S., myself, aged fifty years, had suffered from neuritis in the left shoulder and arm, with the most sensitive spot over the middle of the scapula, for about three months. Local applications, hot water bag, and internal medication seemed useless, and often sleep could be procured only by the use of morphine. The arm was useless, as the hand could not be raised to the head and had to be supported in a sling. All this time my electrical appliances were not available. As soon as the opportunity offered, I had the high frequency body tube applied daily for a few minutes over the sensitive area, the shoulder, and down the arm. Relief was prompt, improvement progressive, and at the end of a week all pain was gone, never to return even in the slightest degree.

CASE XII. Mr. L., business man, aged eighty years, had suffered for about a year with sciatica in the right leg. Had used medicines, local measures, and osteopathy, with no improvement. He walked with a limp and pain interfered with sleep at night. Vacuum tube and spark applications along the nerve from its origin in the lumbar region down its full course, resulted in ten days in a complete disappearance of all symptoms. A brief recurrence after nearly a year was cut short by half a dozen similar applications, and there has never been any return of the trouble.

CASE XIII. Mr. S., aged thirty years, store keeper, came because of recently developed attacks of vertigo, coming on suddenly several times a day. No special cause could be found, either dietetic, circulatory, optic, otic, or reflex. After a week's daily applications of the high frequency tubes to the back of the neck and along the spine, the attacks progressively lessened and soon completely disappeared.

Further to multiply experiences would be superfluous, as these few examples are merely suggestions as to the vast variety of ailments that are amenable to some of the many modes of administering elec-

tricity. Judgment is required to select the particular form whether static, galvanic, or faradic, and the method of application specially adapted to each case. Only an experienced operator will get the best results, and failure to get benefit is not so often due to lack of curative power in the remedy as to lack of skill in the administrator. Often a doubting or timid patient will assert that he cannot take electricity or that he has tried it before with no benefit, not appreciating that the different modalities and methods of administering it are so numerous, that he might as reasonably have said that he "had taken pills," implying that this term included all internal medication. In the same way, even members of our own profession are often inexcusably delinquent when making reports, in society meetings and medical journals, of cases benefited by electrical treatments, by reason of their failure to state definitely the character, amount, and method of using this agent of multiform attributes. Many interesting and profitable scientific papers are so inadequately reported by the stenographers of the periodical in which they are published or reviewed, as to lose much of their value or even leave the main point beclouded. This article must be excepted from any such condemnation, because it is not written with the idea of teaching electrical technic, but rather to suggest to the inveterate pill and potion doctor the wide field for further exploitation when he seems to have reached the end of his remedial resources. It is a fact that the vast majority of patients have exhausted the armamentaria of the drug store and their family physician before ever thinking of consulting an electrotherapist. Yet the specialist in this line must likewise beware of entirely discarding such drugs, or other methods as seem indicated as adjuvants to his art. Often to obtain the best and quickest results, a variety of resources should be employed. The electrotherapist should first be an experienced physician and then use his specialty as one of many remedial agencies at his command. Some deluded people outside of the medical profession, such as nurses and quacks, have been induced by the makers of electrical apparatus to attempt treatments made simple by the glib statements of the ease of applying the currents. Such incompetent operators should not be intrusted with the use of this powerful agent, or be classed with the educated specialist.

Doubt is often expressed by the skeptical of there being any inherent therapeutical properties in electricity, the assertion being made that most of the cures and improvements are psychical, and due to suggestion, wonder, fear, or hopeful expectation. While some element of truth lies in this assertion, the fact is an added recommendation, rather than an objection to the employment of this agent. The mental attitude of a patient toward any remedy is generally acknowledged as a powerful element in the cure, and with these measures that additional aid is vividly called into play, to the advantage of both physician and patient. A final illustration of such a purely suggestive action is here presented.

CASE XIV. Mary W., aged twenty-three years, was brought to the hospital ward where I was serving, unable to speak, and no history could be elicited. She seemed to be suffering from some obstruction in the larynx, which

interfered with her breathing and vocalization. Respiration was rapid and labored, and the air whistled as in croup in passing through the narrowed laryngeal opening. There was intense congestion of the pharyngeal mucous membrane and some swelling of the cervical glands, but no fever or other alarming symptom. She was examined by a number of the most competent physicians called in consultation as the day advanced, and her condition grew more serious, without any definite conclusion being formed as to the nature or cause of the laryngeal occlusion. Internal medication, backed up by inhalations of steam, hot applications, and counterirritants to the throat, availed nothing in ameliorating her condition. She gradually became cyanotic from lack of air, and finally lost consciousness. By midnight she seemed about to expire, and her only chance was in tracheotomy. After summoning in consultation the entire hospital staff, it was decided that this must be done. While preparing instruments and dressings, the dangers of the operation and chances of recovery were freely discussed in the presence of the comatose patient by the doctors and nurses at the bedside. As I made the first incision of the skin over the thyroid cartilage, my attention was arrested by a slight twitching of the girl's eyelids and an almost imperceptible wincing as if she felt and feared the cutting process. A second attempt to expose the subcutaneous tissue was accompanied by a somewhat more pronounced movement of shrinking. At once laying aside the scalpel, I quietly remarked to the onlookers, that I had just made a discovery and believed that I could make a more expeditious and satisfactory cure by other means than an operation. I directed that a powerful faradic battery should be brought, and pending its arrival, with the aim of bringing suggestion to play on the subconscious mind of the patient without her suspecting it in the least, I went on to describe how I had found evidence of a spasmodic contraction of the laryngeal muscles which would doubtless readily yield to the external application of electricity. The two electrodes of the battery were then applied on opposite sides of the larynx, and as the current was constantly increased, a violent spasmodic contraction of the cervical muscles was set up, and again relaxed, as the surging of the broken current was repeatedly made and cut out. As the discomfort so invoked had its effect, I soon called the attention of the onlookers to the fact that the laryngeal spasm was relaxing, the whistling sound becoming less marked, the respirations slower, deeper, and easier, the eyes were opening, and consciousness returning, while vocal sounds were becoming possible. And as, coincidentally with these suggestive remarks, the patient was aroused and struggled to get away from the annoying application, I was unrelenting in the punishment and increased its severity till she audibly begged me to desist, assuring me that she now felt perfectly well. The attack was probably of an hysterical nature due to autosuggestion, in a weak nervous girl, who had unconsciously yielded to symptoms she had previously observed in a case of true croup. The electrical application was merely the agent for impressing on her mind the countersuggestions which diverted her energies into healthier channels.

The scope of this paper is too broad to do more than merely call attention to the many other modes of administering electricity than those that have been above described; such as the peculiar electrolytic and absorbing power of the negative pole of the galvanic battery, the dehydrating, hemostatic, and anodyne effect of the positive pole, the ionization of medicaments by both poles, the tonic and nerve regenerating effect of central and general galvanization, the muscle contracting power of the sinusoidal and faradic currents, the destructive effect on malignant neoplasms of the Röntgen ray, the electric cautery, and fulguration by currents of high tension and high amperage, not forgetting the wide field covered by the electric light. So great is the scope for exploitation in this line, that, taking it all in all, few patients should despair of relief or cure of the most intractable diseases until they have consulted a competent electrotherapist.

How this agent acts, and why it is so widely applicable, has already been explained in an article by the author published in the NEW YORK MEDICAL JOURNAL for May 9, 1914, entitled, *Why Electrotherapy Cures*.

CLINICAL AND EXPERIMENTAL TRICHOMONIASIS OF THE INTESTINE.*

With Cultivation of the Causative Organism.

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It was the writer's good fortune to have under observation at the same time cases of infection by similar parasites, namely, *Trichomonas vaginalis* Donné and *Trichomonas hominis* Davaine or the *Trichomonas intestinalis* Leuckhart, and a comparison as to activities, form, properties, and cultural capacities of these two, more or less confused, organisms is now in the course of preparation. The intent of the present communication is a discussion of the intestinal trichomonas, its pathogenicity, form, properties, cultivation, and experimental transmission to lower animals, a similar report having already been given by us concerning *Trichomonas vaginalis*.

CLASSIFICATION.

It is entirely beyond the scope of this discussion to attempt to untangle the confusing statements which one encounters from various writers concerning the vaginal and intestinal forms of the trichomonads, to say nothing of those encountered in other situations, and including the cercomonas. The degree of this confusion is amply illustrated in finding two entirely different organisms described under the same name by the same author. Suffice it to say that *Trichomonas hominis* has been encountered in numerous instances in different parts of the world in cases of diarrhea, and in small numbers also in the intestines of persons apparently healthy.

Until we have had the opportunity of a full comparison of the trichomonads found in different situations in the human body, we cannot say whether they are all the same or not, neither can we form an opinion as to whether those encountered by other writers in the mouth, lungs, and stomach conform to our vaginal or intestinal forms.

The occurrence of the trichomonas in cases of diarrhea and also in apparently healthy individuals is largely responsible for the questionable status of the organism as to pathogenicity, which question has not been heretofore solved by the transmission of the infection to lower animals. Consequently we find the same confusion concerning this form that we encountered in connection with *Trichomonas vaginalis*, and may sum up the consensus here as there, that the trichomonas may further excite or cause to continue an already existing inflammatory condition.

CASE. B., white, admitted January 20, 1915, to the Roper Hospital in Charleston; gave a history of intermittent at-

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tacks of diarrhea for the past few months, accompanied by malaise and weakness, and of hypertrophic itching eczematous dermatitis on the dorsa of the hands and wrists. This dermatitis he said developed a month previous to admission as a scaly itching rash, following exposure of these regions to acids and heat, he being an acid burner in a phosphate mill. He exhibited no other signs of disease, and because of subsequent developments in reference to his diarrhea and general condition and of the character of this dermatitis, I believe the suspicion of his having pellagra, which was entertained at first, was not warranted. His diarrhea was never severe, usually amounting to one or two stools a day, sometimes three. The stool was semisolid, more fluid at times, and showed a tendency to early fermentation. On January 29th, the diarrhea being at that time quiescent, he was given magnesium sulphate and the resulting stool sent to us for examination.

In fresh preparations under the microscope were found large numbers of actively motile pear shaped cells, measuring about 13 by 18 microns, darting about. The larger end of these cells we prefer to call the head for reasons obvious as the history of the parasite is worked out. The posterior end tapered to a point and often was continued to a short attenuated tail. When in active motion we could make out no disturbance of the surrounding materials which would indicate flagellated action nor could any undulating membrane be seen. After allowing the organisms to slow down, we still failed to find flagellæ and undulatory membrane and, although we could not properly call the tail a flagellum, rendered an opinion of cercomonas infection.

These cells as studied at that time and on the following day, maintained this form. The cytoplasm was almost smooth, the nucleus was indistinguishable, and motion was that of protoplasmic undulation on one or more sides or massively from head to tail. The usual motion was by the projection of a pseudopod, at times as long as the body, from one side of the head, which passed backward in a decreasing wave to the tail. At times this movement occurred on different sides, occasionally it passed from head to tail as a massive wave around the whole circumference, and more than once small waves were seen to go from head to tail on one side and back up to the head on the opposite.

The resemblance of these protoplasmic projections to amebic pseudopodia was marked and, in stained preparations, had we not already seen the living cells, we should have had difficulty in distinguishing them from amebas, the simulation, as they appeared to be engulfing bacteria, was so nearly perfect. After having studied these cells, we can readily understand how these two organisms could have been confounded by at least one author, and how it might be possible to conceive of them as different stages of the same organism.

At the time we were interested in the cultivation of *Trichomonas vaginalis* and so made a plant, in the media which we were using, from this stool. We also compared these cells to *Trichomonas vaginalis* and could see no similarity in the two, save in general motility and in general shape. It was with considerable surprise on the next day, that we observed that the cells had assumed, in culture tube and in the original stool, the characteristic form of *Trichomonas*. They were then still generally pear shaped, although they twisted and turned, elongated and shortened at will, and even at times projected short blunt single pseudopodia at various points. They were very active, darting here and there in all directions, the larger end leading, motion never reversed, and although at times the shape reversed and the head became the smaller, it could always be distinguished as such by its flagellated condition, these fine filaments being used for purposes of locomotion in continuous rotation.

Allowing the organisms to slow down, their form could be accurately studied. They possessed four flagellæ attached to the anterior end by little knoblike blepharoplasts, these flagellæ brushing in a whiplike manner, carrying surrounding materials toward one side of the cell, where the wall was flattened for the anterior half, and at which part solid materials, such as bacteria, could be seen to enter the cell. These flagellæ were delicate, about the length of the cell, and either moved in regular time, singly, or at regular in-

tervals as a group. In addition, there was a definite undulating membrane along this side, seen in motion as decreasing waves passing from the base of the flagellæ to the tail. Its action was apparently started with that of the flagellæ and when they moved in rotation it was a continuous undulation.

The cytoplasm was finely granular, frequently with ingested bacteria showing and occasionally one or more round nonpulsating vacuoles. The nucleus could not be distinguished with any degree of accuracy. The posterior end usually ran to a point and was often prolonged to a short stiff tail, which was not a flagellum, but an elongation of the protoplasm, projected at will and used as an anchor. This tail was at times drawn to a long delicate filament as the parasite pulled away from its anchorage, and was then taken in by the cell.

In specimens stained by Leishman's method, the cytoplasm was finely granular, pale blue, and usually contained bacteria in small food vacuoles. The nucleus stained red, was irregularly rounded, at times misshapen, with definite membrane, condensed periphery, and practically always hollow in the centre. The average size of the cells was about 16 by 21 microns, the nucleus measuring about five microns in diameter. Some cells of half that size and others double that were seen.

After mordanting with iron-ammonia-alum and staining with hematoxylin, the four flagellæ, the ingested bacteria, and when in correct position, the undulatory membrane, were plainly observed.

Direct effect of various preparations on the living organisms. As the form of the cells now continued to be that of *Trichomonas* in the subsequent stools and in cultures, we became interested to know what had produced the change in the first specimen, as we were also interested in the effects of various solutions upon the organisms from cultural, therapeutic, and hygienic standpoints. Since that first stool followed upon the administration of magnesium sulphate, we first applied solutions of this salt to fresh preparations and found that in concentrated solution it caused immediate death and in weak solutions slow death without any change in form from either. Neither was any change seen in those of subsequent stools following magnesium sulphate administration.

Alkaline media, while preventing multiplication, failed to change the form. Emetine hydrochloride in a 0.5 per cent. solution had no effect. Urine limited the life of the cells, but produced no change. In tap water they lived only a few hours, and no multiplication or development of irregular forms occurred. Consequently any infectivity of water contaminated with the parasites must be of short duration, provided that it was from the active forms, nor could this be much prolonged by the presence of cysts, as indicated presently.

It was while attempting to stain the living cells with alkaline methylene blue, that we again encountered the forms seen in the first stool. Application of this solution to fresh preparations showing active *Trichomonas* form, caused the cells to lose the flagellated action and undulating membrane and assume the irregular and massively undulating form. It also slowed them down and stained the bacteria within the body. After a short period the blue would fade from the preparation, and either because of a change in the solution or the development of a tolerance by the cells, the effect was lost and the organisms again assumed *Trichomonas* form. In specimens stained after the application of this solution, the flagellæ could occasionally be seen lying straight back upon the cell body; and as they again became active in fresh preparations after the solution lost its effect, apparently it was only a paralysis of these organs and the undulating membrane, with the assumption of this adaptive form by the cell.

What it was that changed the form in the first specimen we have no means of determining, but in the light of their subsequent recovery and of this experiment, it seems that the form of the cell may be altered by environment without the parasite being permanently disabled. The assumption of the protoplasmic undulating and ameboid form would seem to be a process of adaptation, its means of locomotion and feeding having been lost in the flagellæ and undulating membrane.

We surmise that the form has been encountered before, and that our mistake is not the first of its kind. In fact,

we should not be surprised if some of the confusion between the trichomonads and the cercomonas can be accounted for by this change in form.

Cultivation of Trichomonas in vitro and development of encysted forms. Our efforts at bringing about multiplication of intestinal Trichomonas in artificial culture have been attended with more extensive success than that already reported with Trichomonas vaginalis. Having tried out various media and many environments, all of which need not be discussed here, we have centred on acidified nutrient liquids, our best growth occurring in bouillon with about 0.05 per cent. acetic acid, and at about 30° C.

Under such conditions we have not failed in many attempts to produce considerable increase in numbers of the organisms, and some increase in size, for a period of about four days. We have also obtained subcultures from these originals, carrying several through five and six successive tubes by planting anew every third day. It has been impossible to exclude the growth of various bacteria, and as they overran the cultures in about four days the trichomonads gradually disappeared, some of these organisms, however, remaining active in the same tube for a week.

With exceptions to be mentioned presently, the life cycle is apparently that of simple direct division of the cell with the production of two of similar appearances, slightly smaller than the average. The cells increased in size, the average in cultures being about 15 by 20 microns, to about 20 by 30 microns, the nucleus grew in proportion and became looser, then by hourglass constriction, divided into two, one lying on each side of the midline. Division of the cell began at the head at the point of attachment of the flagellæ, and the cell assumed the shape of a shield with the upper rounded corners corresponding to the two new flagellated heads. It seemed that these new heads had only two flagellæ, and we believed that half of the old is taken by each new cell to be and that the other flagellæ are subsequently developed, as we saw in a stained specimen these new heads with four flagellæ, and all of the fully divided cells had four. However, the activity of the organism made it difficult to be certain of the number of these organs, and it is possible that the splitting may be through all four of them and their bases. The depression between the two heads increased in depth until the cell was split in two down the midline. From the observation of a cell in this early stage of division which had an undulating membrane on each anterior half attached to the bases of the flagellæ and apparently fused into one for the posterior half, we believe that the division occurs along the line of, and includes this organ.

This process consumed some time and we were never able to observe a complete division. However, from the combination of evidence in stained and fresh material, we believe this to be the ordinary cycle. We are also prepared to bear out the contention of at least one author that these organisms may also become encysted.

These forms we encountered from time to time in stools from the patient, from rabbits infected with Trichomonas, and in cultures. They occurred in cultures which did not originally contain them and similarly in stools, as well as in those where they were present from the first, and they increased in numbers as the active forms decreased, and then disappeared in the course of a few days. They were round cells of about the same varying size as the active trichomonads. They had a hyaline body and a thin shell of, at first, clear material which later became more opaque and darker and contained varying numbers of highly refractile bodies.

By staining, with Leishman's method, specimens which contained only this form of cell, we found rounded cells with the bodies composed of blue and red granules in varying proportions, with a small dense red nucleus toward the periphery, sometimes two of these nuclei on opposite sides, a definite limitation to the body, and a rim or shell of red granular material. We also saw, in such specimens, cells conforming more to the staining of the active forms, still bluish, but with their nuclei smaller and denser, with varying degrees of differentiation into body and shell, sometimes the rim still blue, sometimes both body and shell a mixture of red and blue granules. On the other hand, we encountered cells entirely red, granular, body paler than the shell, and small dense red nucleus at the periphery. These cells became more and more indistinct as to out-

lines, differentiation, and structure, and finally disintegrated.

In attempting to ascertain the exact status of these cells, we made a plant from a culture which contained only these forms, and on the next day there were present, in addition, considerable numbers of fully formed active trichomonads. At the same time we made a plant from a six day old stool showing only these forms, and on the next day observed, in addition, active trichomonads. We also planted material showing only the active forms on media unusually acid, and on the following day there had occurred no proliferation but these cysts were plentiful and the remaining active forms had assumed a hyaline cast with numerous highly refractile granules toward the periphery. In studying preparations from this tube we had the satisfaction of observing cells in the various stages of the transformation. They, while still active, became more rounded, the cytoplasm gradually became differentiated into a hyaline body and a clear rim, which was thin on the sides and thicker at the ends, the refractile granules at the periphery of the body decreasing in number. Rounding and differentiation proceeded gradually, and the flagellæ and undulating membrane became lost and motion stopped before complete transformation.

In the course of rectal injection of a rabbit with feces containing only these cysts, puncture of the intestine occurred and the animal died in six hours. In the exudate of this peritonitis were found still the cysts and, in addition, plentiful active trichomonads. It may be interesting here to note that mixing feces, showing these forms with tap water, caused a disappearance of the cysts in the course of a day. Consequently from these observations and experiments, we judge these cells to be truly encysted forms of the parasite, developed under conditions unfavorable to continued proliferation, but favorable to the change, and that, by a reverse process, active Trichomonas may be developed from the cyst under favorable circumstances.

From the early disintegration of these cells, we believe their time of life is not long, and the infectivity of material containing Trichomonas cannot be long, even when cysts are developed.

Experimental transmission of the infection to lower animals. Our attempts at infecting rabbits with Trichomonas intestinalis were begun and success was obtained several days before the like success reported with Trichomonas vaginalis, and have been carried out in a more extensive manner than with that organism. Before using the animals, we were careful to determine that they were passing the normal rabbit stool and to probe the rectum and make sure of the absence of like organisms from the intestinal contents.

On January 31, 1915, rabbit No. 1 was injected with three c. c. of the fresh stool containing active trichomonads, through a tube passed about six inches into the rectum. On the morning of February 2nd, it was passing soft brown stools rich in mucin and trichomonads. This diarrhea continued to the present, a duration of sixteen days, and the trichomonads are still present. At times the stools have been of the normal character and in these we did not find the organisms. These periods would seem to conform to the like intervals of normal passage in human beings, and we would account for many occurrences of Trichomonas in the feces of persons without diarrhea on the basis of these normal periods. For the last few days there has been none of these normal stools and, while the rabbit does not seem to be much disturbed, the bowel movements are softer and more abundant. We have cultivated Trichomonas from these stools.

Rabbit No. 2 received a similar injection on January 2nd, but unfortunately the rectum was ruptured. As a consequence the animal died the next day from acute peritonitis. In the exudate from this peri-

toneum were large numbers of active trichomonads, and several cultures were obtained and carried through several generations.

Rabbit No. 3 was given by mouth, on February 5th, two c. c. of fresh feces containing active trichomonads, and on the tenth was passing the soft stools with the same organism present. This animal has alternating periods of normal and loose bowel movements much the same as No. 1, continuing to date. It was in the feces of this animal that we found large numbers of the cysts on the sixteenth.

Rabbit No. 4 received the contents of one culture, containing active trichomonads on February 5th, the diarrhea with the organism showing itself on the eighth and running the usual course to date.

In control rabbits receiving feces in which all trichomonads had died, no diarrhea occurred.

Rabbits No. 5, 6, and 7 received feces six days old, which contained only the encysted forms of the organism, No. 5 by mouth, 6 and 7 by rectum. The intestine of No. 6 was punctured and its fate has already been recounted. The other two have been inoculated only a day and have shown nothing yet.

There has occurred to us no change in form of the parasite obtained from these rabbits, other than a decrease in size of the cell of about one or two microns.

SUMMARY AND CONCLUSIONS.

Having obtained *Trichomonas hominis* Davaine or *Trichomonas intestinalis* Leuckhart from the feces of a man suffering from an intermittent diarrhea; having cultivated the organism extensively *in vitro*, in which the life cycle was that of simple direct division with the development of cysts under conditions unfavorable to proliferation; and transmitted the infection from the human stools and from cultures, by mouth and by rectum to rabbits, with the production of a similar diarrhea, and recovering the organism from these animals; and having seen the parasite lose its characteristic form and assume a nonflagellated ameboid appearance without undulating membrane, under the influence of certain media, having seen it recover and return to form; and having failed to keep the parasites alive, either active or as cysts in water more than a few hours, and only a few days under the most favorable circumstances of a continuous nature; we feel justified in making the following conclusions, especially in the light of the previous report concerning *Trichomonas vaginalis*.

1. *Trichomonas* is a definitely pathogenic microorganism.

2. The intestinal form produces a mild enteritis manifested by an intermittent diarrhea.

3. Infection by this organism may occur by mouth or by rectum, more naturally by mouth, from active forms in rabbits, but probably from encysted cells in human beings.

4. The duration of the infectivity of water containing either active trichomonads or the encysted is probably not long.

5. The form of the cell may be so altered by environment as to render immediate recognition difficult.

6. This organism is capable of artificial cultivation, this having been accomplished.

7. It multiplies by direct cell division, this with the transformation into encysted form which may again become active, constituting the life cycle of the organism.

8. Rabbits are susceptible to experimental infection by *Trichomonas*.

POST PARTUM RETRODISPLACEMENT OF THE UTERUS.*

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The object of this contribution is to discuss the retrodeviations of the post partum uterus, its effects upon the drainage and involution of the uterus, its treatment, and subsequent effects to the patient, both locally and generally.

This puerperal or post partum complication is much more frequent than the textbooks on obstetrics lead one to believe. The frequency varies considerable between hospital and private practice. In hospital practice very few retroversions are encountered. A final examination is made from the tenth to the fourteenth day when the patient is discharged. If a retrodisplacement is found, she is told to return for further treatment. This advice unfortunately is heeded only by few. In private practice examinations are made, or should be made at frequent intervals during the entire period of involution. As it is during the time from the second week to the sixth or eighth week that a large percentage of retrodisplacements are found. In looking up the last two thousand deliveries at the Post Graduate Hospital obstetrical service, final examinations made on the tenth day showed 5.3 per cent. retroversions. Solomons, at the Rotunda Hospital in Dublin, found that, in a series of 539 cases, nine per cent. have retroversions on the sixteenth day after delivery. This is contrasted with Austin Flint's figures of 21.3 per cent. retroversions found at the end of the sixth week post partum in 272 cases. These figures tend to show, that as the patient progresses further in her puerperium up to the sixth or eighth week, many more displacements are encountered than at the end of the second week. It may be an item of interest to indicate the proportion of women attending a gynecological clinic who have retroversions, and the proportion found subsequent to abortion and labor. At the Columbus Hospital, out of 2,315 patients applying for treatment in the last four years, 455 had retrodeviation of the uterus; of this number, 325 or seventy per cent. followed abortion or labor, and 145 or thirty per cent. resulted from other causes. This gives us an idea how many patients having symptoms of a sufficient degree to seek aid, have labor or abortion as the etiological factor in their morbid condition.

The term post partum, as generally used, is meant to convey period from the termination of the third stage of labor until involution of the uterus and pelvic structures has been completed. As the handling of these cases incorrectly may mean poor

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health, invalidism, and sterility to the patient, it is important for her future welfare, in the majority of cases, that these faulty positions of the uterus should be prevented, if possible, and corrected when they do occur.

At the completion of the third stage of labor, the uterus contracts immediately to a hard round body whose fundus reaches about two fingers' breadth below the umbilicus. As relaxation occurs from this firm contraction and the uterine musculature assumes a more regular tonus, the fundus comes to occupy a position usually one or two fingers' breadth above the umbilicus. From now on during the puerperium the uterus should gradually get smaller, with the lowering daily of the height of the fundus, until it reaches its normal size and position in the pelvic cavity at the completion of involution.

The process of involution consists in the efforts on Nature's part to restore to normal the mass of hypertrophied and hyperplastic uterine musculature; to decrease the calibre of some of the blood and lymph vessels and to complete the atrophy of others; the casting off from the wall of the uterine cavity, decidual remains and blood clots; the regeneration of the epithelial lining of the uterus from its glandular structures. The normal supports of the uterus also undergo certain changes. The round ligaments decrease in size by a process of atrophy of some of its muscular fibres and decrease of the elastic tissue element. The broad ligaments, in which increase in vascularity and cellular structures, with moderate separation of their two peritoneal folds has been the normal course during pregnancy, become less vascular by atrophy of some of the blood and lymph vessels and partial absorption of the cellular elements and later approximation of its peritoneal folds. The uterosacral ligaments, which had become elevated by the increase in size of the pregnant uterus, gradually assume their normal positions with decrease in their muscular and elastic elements. The perineal supports, mainly the levator ani and its strong fascial coverings, assume their normal tone by decrease in their vascular elements and absorption of the proliferated elastic tissue and approximation of the muscular bundles.

It is at once seen that as this important process of involution takes place, how necessary it is that the uterine cavity should assume a straight or gentle curve to facilitate drainage of its contents. Any displacement of the uterus so dams the lochial flow by acting in a mechanical manner, that absorption and possible infection result.

Displacements further interfere with the normal course of involution by causing a passive congestion of the uterus and its supports, preventing proper absorption by means of the blood and lymph streams. The Fallopian tubes and ovaries are usually prolapsed by this posterior displacement, causing an altered condition in their blood supply which leads to certain changes in these organs. Veins of the pampiniform plexus may also become so engorged that varicocele occurs as a late manifestation.

The uterus is maintained in its normal position by the round ligaments attached to the fundus anteriorly, acting from a fixed point at the internal

inguinal ring, and the uterosacral ligaments running from the sacrum and attached to the posterior surface of the supravaginal cervix and lower uterine segments, which tend to retain the lower portion of the uterus in the hollow of the sacrum. These two sets of ligaments, together with the strong perineal fascia and levator ani, form the support of the uterus and tend to perpetuate its normal anteflexed position.

Given a large, freely movable uterus, and these maintaining supports in the same stage of involution, it is readily comprehensible that, when the patient assumes the upright position, the sudden increase of intraabdominal pressure and gravitation of the intestines upon the fundus uteri, might cause it in a large number of cases to become retrodisplaced. Such displacements occur either at the immediate time of assumption of the upright posture, or later by a continued action of these forces.

The abuse of the abdominal binder during the puerperal state is another factor influencing displacements. After delivery the binder is usually applied very snugly over the hips and abdomen of the patient, as considerable comfort is obtained thereby, the binder splinting the relaxed abdominal muscles and pelvic joints. The continuation of this tight application during involution, especially as the fundus of the uterus approaches the pelvic brim, acts then by increasing the intraabdominal pressure and favoring the backward displacement of the uterus.

Lacerations of the pelvic floor, especially if they have involved the levator ani and its fascia, are other factors interfering with the proper involution of these structures and the integrity of the uterine supports. Unrepaired cervical lacerations, if they have involved the vaginal vault and extend into the broad ligaments opening up the cellular structures, cause pelvic congestion and subsequent subinvolution of the uterus. These lacerations, by the formation of scar tissue and infiltration of the cellular tissues by infective processes, produce constant irritation.

The assumption of the dorsal position, together with a full bladder, that does not empty itself completely and which fills shortly after voiding, influences the tendency to posterior uterine displacements. Straining at stool causes an increase in intraabdominal pressure and is another factor producing this displacement. Women having a general visceroptosis, owing to the relaxation of the abdominal and pelvic structures and consequent delayed involution, tend to have a displaced uterus during the puerperium.

It has been stated that a certain number of women who have had retroversions before pregnancy ensued, are apt to have a return of this condition post-partum. I have seen a number of patients with retrodisplacements in whom, following delivery, this condition did not recur. This may be due to the pregnant state putting them upon the same footing as other pregnant women, and their tendency to post partum displacements is not greater than in the average case.

Symptoms of retrodisplacement vary according to the stage of the puerperium at which the condition presents. During the lying-in period the manifesta-

tions may cause considerable alarm, and differential diagnosis is an important factor. A patient will progress favorably till the sixth or seventh day with proper involution, and we feel no anticipation of trouble of any kind, temperature, pulse, lochia, breasts, and bowels normal, until suddenly a slight rise in temperature is reported to 100° or 101° F., no pain or discomfort being felt by the patient, only a slight decrease in the lochial flow being present. On examining the abdomen, the fundus is not palpable, whereas the day before it was at the brim of the pelvis; the next day, if the condition has not been discovered and remedied, the temperature is higher and there are some constitutional symptoms of a chilly feeling, or a headache, increased rate of pulse, marked diminution of the lochial flow, and some indistinct tenderness in the lower abdomen. On now making a vaginal examination, we find a retrodisplacement of the uterus with the fundus in the cul-de-sac of Douglas, this having caused a stenosis of the uterine canal at the internal os, with a retention of the lochia in the uterine cavity. Reposition of the uterus and reestablishment of uterine drainage cause these alarming symptoms to subside in a short time. This condition, due to putrefaction of the lochia and absorption of toxins, if allowed to continue untreated, will run a course similar to sepsis. The symptoms of retrodisplacement occurring early in the puerperium might be confounded with, and should be differentiated from sepsis, pyelitis, mastitis, phlebitis, and intestinal toxemia and other acute infections not incidental to the puerperium.

Another type of case is that of the patient who, on the getting up day, will return to bed complaining of cramps in the lower abdomen and backache of a sacral nature. There may be some rise of temperature, but more often there is none. On vaginal examination a retrodisplacement is found. After the correction of this malposition and the retention of the uterus in its normal place, all symptoms subside and the remainder of the puerperium is uneventful. A great many of these cases do not show any constitutional symptoms, as involution has progressed sufficiently to render the lochia scanty, or the uterine cavity being smaller, less absorption takes place, or less putrefaction occurs, owing to a diminished amount of blood serum and cells. This condition of retroflexion is discovered at an examination on the fourteenth day, which is so frequently the final examination. The fact that so many malpositions occur after the customary final examination at the end of two weeks, should be strongly emphasized. These patients complain of backache, feeling of fatigue, continued red lochia, heaviness in the pelvis, and at times acute pain, possibly bladder symptoms, such as frequency of urination or inability to retain more than a small amount of urine. Others do not complain, merely having a continuation of the red flow. This condition, if untreated, prolongs subinvolution of the uterus with its accompanying symptoms of backache, irregular red flow, cramplike or heavy dull pains in the lower abdominal region, profuse leucorrheal discharge, dysmenorrhea and later menorrhagia and metrorrhagia; there may be also pressure symptoms on the rectum, and bladder symptoms of increased fre-

quency, with voiding of small quantities from the diminishing of the vesical space. Reflex symptoms later appear as the nerve supply of the pelvic organs is plentiful, and the patient subsequently complains of stomach, spinal, intestinal, and head symptoms, finally becoming a woman with a thousand aches and pains.

Owing to the turgescence and hyperplastic condition of the endometrium in retroversion, the ovum, if fertilized, does not find it a favorable resting place for growth and development, consequently in a certain proportion of cases, if pregnancy does take place, abortion is very apt to occur. The fact that the external os is not at a favorable angle to the vault of the vagina, not allowing easy entrance to the spermatozoa, is also a factor in the failure of conception. It is not to be forgotten that there are some women who present no symptoms from retrodisplacement and continue to conceive and bear children. This class, however, is in the minority.

To prevent this complication occurring during the puerperium, we should watch our patient carefully during the entire pregnancy. To build up the tonus of her whole musculature by means of outdoor exercise in moderation and without fatigue, should be our aim. During the later months there should be given active and passive exercises and massage, which, of course, is limited to those in comfortable circumstances.

Following labor all perineal and deep cervical lacerations should be immediately repaired. Posture in bed should not be confined to the dorsal. The patient is encouraged to lie on her side and abdomen, and as the fundus nears the brim of the pelvis, the assumption of the exaggerated lateral prone position with elevation of the hips upon pillows should be practised. A matter of great importance, as recommended by von Wild, is the hastening of involution by increasing the general muscular tone and circulation with mild exercises several times daily. These exercises should start on the second or third day post partum, beginning with the arms, then the legs, and later the abdominal muscles. By means of these exercises the pelvic structures undergo involution more rapidly, and the patient is able to get up earlier than otherwise.

The act of nursing is Nature's adjuvant in hastening involution through its nervous stimulation upon the uterus. Breast feeding, therefore, should be insisted upon for a period of at least two months, for its action upon the mother's pelvic structures as well as the nourishment of the child, unless some special contraindication exists.

The routine administration of ergot in small doses aids along the same lines. Examine the bladder by palpation through the abdominal walls to ascertain if the patient is emptying it properly, and if not, use the catheter under aseptic conditions. 2 This, of course, should only be resorted to after other measures have been tried. The regulation of the bowels by suitable medication or enemas to avoid straining at stool is of considerable importance as a preventive measure against retrodisplacements.

Getting up should be discretionary with the physician, as no hard and fast rule can be followed as to what day the patient may leave her bed for the first time. Only when involution is sufficient, so that

the fundus is below the pelvic brim, should getting out of bed be allowed. This, of course, will vary in different patients, and it depends upon how rapidly involution proceeds. After getting up, the knee chest position should be assumed by the patient several times daily, and on returning to bed the exaggerated lateral prone position resumed.

When a retroflexion is discovered, immediate reposition is necessary. This can usually be accomplished bimanually, with the patient in the dorsal posture. Occasionally, either through the lack of abdominal relaxation on the part of the patient, or an incarceration of the uterus in the hollow of the sacrum, it fails. Then the use of the posterior perineal retractor, held by an assistant, which exposes the cervix, and grasping the anterior lip with a volsellum, then making traction downward, will cause disengagement of the fundus. With one or two fingers of the other hand inserted in the vagina, the fundus can now be raised above the brim and replaced in the anterior position. When this method fails, the patient is placed in the knee chest posture, the posterior retractor is then introduced, permitting the inrush of air which balloons the vaginal vault. This manoeuvre alone, aided by gravity, will frequently cause the uterus to assume its normal position. If this does not occur, the fundus may be easily disengaged by pushing upward with the two fingers, or with a gauze sponge on a holder, through the vaginal vault. After the reposition has been accomplished, the patient, if she has not yet been out of bed, should assume the lateral prone position several times daily to prevent recurrence of the condition. If she is able and is sufficiently strong, the knee chest position should be taken several times daily.

When the condition occurs or is discovered later in the puerperium, reposition of the uterus is done in the manner just described, and if involution of the pelvic floor and uterosacral ligaments has progressed sufficiently, a hard rubber pessary is inserted. If a pessary is inserted too early in the puerperium, where involution is incomplete, stretching of these supporting structures will result. This stretching may be of such a degree that complete involution never takes place, and these structures never return to their normal state, necessitating the permanent wearing of the ring. In these cases proper position can be assured by the introduction daily of boroglyceride tampons while the patient is in the knee chest position. These act as a sufficient support and at the same time deplete the uterus and pelvic structure, thereby hastening involution so that a pessary at some future time may be inserted. The use of the pessary in these post partum displacements is very satisfactory. It usually means that the patient wears the ring for a period of several months only, till the uterine supports have regained their tone and can do the work themselves; the exception being when, on removing the ring, there is a recurrence of the displacement, necessitating its reintroduction or a later resort to some operative procedure.

The use of hot douches and ergot and tampons in these cases where subinvolution is present, aids considerably in depleting the uterus and hastening involution. The care of the patient's health should

be gone into with great detail, regarding hygiene, exercise, fresh air, diet, bathing, and the care of the bowels, all of which might aid in the promotion of involution and in increasing the tonus of the uterine supports.

In conclusion, I wish to emphasize the following facts:

1. Post partum retrodisplacements of the uterus are far more frequent than is generally thought, and that the discovery of this complication would be made more often if the patients were followed throughout the entire period of involution by the obstetrician and the making by him of frequent bimanual examinations to the sixth or eighth week.

2. The etiological factors are relaxed uterine ligaments, attempting to hold a heavy, freely movable uterus in proper position, while an increase in intraabdominal pressure produces a posterior displacement.

3. A great many displacements can be prevented both during the lying in period and later, by the institution of postural treatment and the hastening of involution by the methods described above.

4. The treatment is the immediate reposition of the uterus and its maintenance by whatever procedure is most applicable to the period and state of the pelvic structures undergoing involution.

5. The results of the prevention and conservative treatment of retrodisplacement are most satisfactory, and if instituted in time, very few patients are subjected to permanent pessary life or need come to operation.

255 WEST 108TH STREET.

THE RELATIVE FREQUENCY OF THE MORPHINE AND HEROINE HABITS.*

*Based upon Some Observations at the Philadelphia
General Hospital.*

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(From the Service of Dr. David Riesman.)

During the past summer my attention was called by a prominent druggist to the increasing frequency of the heroine habit; he had made investigation of the subject in an official capacity. When I went on duty at the Philadelphia General Hospital, in October, I was not surprised, therefore, to see the cases coming into the wards, at first, one at a time, then in twos and threes, and finally, just after the Harrison act went into effect, literally in scores. For the first five months of this period cases of morphine and heroine addiction were distributed to the medical wards and came under the direct observation of myself and colleagues. About the first of March the authorities, apprised of the coming avalanche, provided some ninety-odd beds in special wards and these were speedily filled. Thanks to the courtesy of the assistant chief resident physician, Doctor McIver, who was in direct charge at that time, I was able to observe and question all the patients. I have also collected statistics from the records of the

*Read at the meeting of the West Branch of the Philadelphia County Medical Society, March 16, 1915.

medical and nervous wards, from 1911 onward. I did not go back of that year, because the number of heroine cases had then already reached the vanishing point. My figures for 1915 cover the first sixty-eight days until March 9th, when I began to compile the tables. In the brief period which has since intervened as many new cases have been admitted as during the whole of the year 1914. Among these latter the proportion of heroine subjects is notably less than in the group herewith reported. The following table gives a general summary of all the cases which I have either observed or whose histories I have collected:

TABLE OF ADMISSIONS.¹

Year.	Cocaine alone. ²	Opium, preparations and derivatives. ³	Heroine.	Proportion of total opium cases.
1911	5	29	1	3.5 per cent.
1912	5	64	1	1.5 per cent.
1913	2	40	14	35 per cent.
1914	3	66	28	42.5 per cent.
1915 (68 days) ..	0	136	86	63 per cent.
	15	335	130	39 per cent.

ANALYSIS OF HEROINE CASES.

Of the 130 heroine cases, five were readmitted in consecutive years. Five others were questionable cases, accidental, or occasional use. One hundred and twenty admissions of different individuals remain for analysis. Unfortunately, the data in many cases are scanty.

Ninety-one, or seventy-five per cent., were men, and twenty-nine, or twenty-five per cent., were women. A large proportion (no figures) of the patients were young: in the twenties. A few began the habit as early as the fifteenth year. In twenty-five persons the habit had persisted less than one year—on the average, a little less than six months. In twenty-three the time given was from one to one and one half year. In forty-one the duration was from two to two and one half years. Thirty-seven of these stated it as two years. In eleven the habit had lasted three years, in five, four years, and in three, five years.

Of the last group two (out of three) said they had acquired the habit in New York. Of those who had been addicted to heroine for four years, one blamed New York and one Baltimore. One person acquired the habit in Atlantic City two years ago.

One hundred and one, or ninety-two per cent., of the persons who answered the inquiry, acquired the habit within the last three years and the majority within the last two years. These data taken in connection with the almost complete absence of admissions before 1913 and with the general impressions of the patients, many of whom were specifically interrogated on this point, seem to prove that the heroine habit, in its present form, is a mushroom growth which has reached huge proportions in the congenial soil of the tenderloin within the last three years.

Almost all the patients acquired the habit from their associates in this particular quarter of the city. Thus they blamed "parties," "girls," "fellows," "friends" and the like. One boy learned while acting as an errand boy; another, still at school, bought

the drug from a vendor of chocolate. A few began heroine to overcome the disagreeable hallucinations induced by cocaine. Many more substituted it for cocaine on account of the difficulty in procuring the latter. Only two patients pretended that there was any sufficient reason for beginning the use of the drug; one took it to overcome the pain of a bubo; another on account of an injured testicle! In not a single case had the drug been prescribed by a physician.

One patient took the drug by mouth; one by hypodermic injection; all the rest as a snuff. In all but a few cases tablets were employed, doubtless containing a liberal proportion of sugar of milk. Before "sniffing" these were crushed between folds of stiff paper or with a pencil. A few patients used the pure drug, but found it very irritating to the nose. The tablets seldom had this effect. In almost all cases one sixth grain (one cgm.) tablets were used. As the centigram makes a convenient unit, I have stated the doses in all cases in these terms. In passing, it may be noted that a bottle of 100 pills costs \$1.25 if obtained directly from the druggist, or a quarter more if obtained through a third party. Almost all the drug was obtained directly or indirectly from one or two dealers who, in order to protect themselves, sold it to "registered" persons only. The following table exhibits the range of maximum dose as reported by the patients. Some of these patients at the time of admission were using much smaller amounts.

22 patients used less than	24 centigrams (pills) a day	(4 grains)
28 " " " " "	48 " " "	(8 " ")
13 " " " " "	96 " " "	(16 " ")
22 " " " " "	192 " " "	(32 " ")

Seventeen of the latter used 100 cgm. (pills) or sixteen and two third grains a day. Fifty or one hundred pills a day seemed to be a favorite dose with many persons. Several married couples divided the daily bottle between them. Five persons used two hundred or more pills a day, the maximum being 360 cgm. or fifty-four grains.

Of the 120 persons addicted to heroine, forty-one or one third admitted the use of cocaine ("coke" or "snow"). Of these twelve definitely stated that they began on cocaine and afterwards took up the heroine habit. I have reason to believe that this was true of a majority of these cases. All who were questioned denied that cocaine was a habit in their sense of the term. This will be explained later. The dose of cocaine was indefinite, as it was bought in packets and was frequently adulterated. One half to one dram seems to have been the usual dose. In use it was mixed with the heroine and snuffed up the nose. Twenty-five of the 120 patients used morphine either before adopting heroine, or off and on, as a substitute. A number had substituted one drug for the other to "break the habit." Cocaine was even more frequently used for the same purpose. Thirteen patients stated that they had used the pipe ("hop"). Many of these were women, and all were denizens of the tenderloin, generally of long standing.

For purposes of comparison I analyzed 176 cases of the opium habit in other forms. Ninety-four, or fifty-three per cent., were males, and eighty-two, or forty-seven per cent., females. The average age (no figures) of the patients was much greater than

¹Readmissions in same calendar year are excluded.

²In addition 81 persons used cocaine with morphine or heroine, either occasionally or habitually.

³This includes opium (pipe), laudanum, paregoric, morphine and heroine.

in the case of heroine. There was a fair proportion of middle aged and elderly persons; 145 were addicted to morphine; nineteen to laudanum; seven to paregoric, and five to opium (smoking as a rule). Forty also used cocaine; fifteen indulged in the opium pipe (not including those admitted for this addiction); four took heroine occasionally, and eight were alcoholic. In most cases the distaste for alcohol was remarkable and was seen in persons who had formerly indulged to excess. Thirty-four persons had taken the drug for five years or less (only two less than one year). Twenty-nine had taken it for six to ten years. Thirty-one had indulged for from eleven to twenty years, and six for more than twenty years (maximum, forty years).

The dose varied widely. Some of those who had taken drugs the longest used only moderately large doses. Twenty-two persons used morphine in doses ranging up to ten grains (sixty cgm.); twenty-two in doses from eleven to twenty grains (120 cgm.); thirteen in doses from twenty-one to thirty grains (180 cgm.); and fifteen in doses exceeding thirty grains—forty, sixty, ninety, and even 120 grains (720 cgm.) being reported. The dose of laudanum ranged from one fourth to seven ounces. The maximum dose of paregoric was one pint daily, equivalent to thirty-two grains of opium.

In many cases the morphine habit was taken up merely as an indulgence, but other persons attributed it to medication begun either upon their own responsibility or upon the advice of a physician. The following are some of the causes given: Neuralgia, two; gallstones; headache, two; insomnia, two; peritonitis; rheumatism, two; antral abscess; diarrhea, two; operation; bruises (a jockey); abdominal pain; piles; colic; confinement; cough; pains, three. One patient acquired the morphine habit in an attempt to break the alcoholic habit. Another attributed it to habitina, taken to cure laudanum addiction.

It is beside my purpose to go into a detailed account of the symptoms and treatment of morphinism and heroinism. I shall confine myself, therefore, to a few impressions based upon the statements of patients. When heroine is taken for the first time by insufflation, there is a pleasant sense of exhilaration and self satisfaction, which gives way to sleepiness if the snuffing is repeated. After a very brief period of addiction, the user ceases to enjoy this blissful state and is lucky, if after his usual dose, he can regain even a normal sense of well being and energy. Very soon he begins to suffer from the habit, or, as opium smokers call it, *yen yen*. He awakes in the morning with a sense of utter listlessness and lack of ambition accompanied by yawning or gaping. Without his usual snuff he feels that he cannot get up and go to his work, but as soon as he gets it, he is immediately restored. Later in the day the craving returns and is satisfied in the same manner. If the victim is unable to get the drug, nausea, vomiting, at first of mucus and later of green fluid, pain in the stomach, colic, diarrhea, restlessness, insomnia, pains in the limbs, chills, sweats, feeble pulse, and all the other symptoms of deprivation so familiar in morphine cases make their appearance. As a rule the withdrawal symptoms are not so severe in heroine as in morphine habitués, but the differ-

ence is one of degree rather than of character. If the withdrawal is immediate, these symptoms are intense for several days, but then clear up, leaving the patient weak and devoid of appetite. Very soon, however, the appetite becomes ravenous, and the weight, which has fallen off markedly, is rapidly regained. All the patients who employed cocaine agreed that it did not produce a habit in their acceptance of the term. Briefly stated, the heroine addiction is a negative pleasure; the cocaine, a positive one.

The literature of the heroine habit is not an extensive one if we omit the newspaper vaporings of the last few months. It is divided into two distinct categories: 1. The literature of the heroine habit, as produced by the indiscriminate use of the new drug by the profession some ten or twelve years ago; 2, the use of the drug as a pure luxury during the last five years. The first category, not being germane to our subject, may be dismissed in a few words. The second, for lack of material, may be briefer still. Heroine (diacetyl-morphine-hydrochloride) was introduced into practice about 1898 (Dresser, 1), and was recommended for the relief of pain, and particularly for pathological respiratory conditions (cough and dyspnea). It was repeatedly emphasized by reporters that it was not a habit producing drug, and in France it was lauded as a cure for the morphine habit. As a result, Pettey (2), of Memphis, was able, in 1903, to report eight cases of addiction traceable to physicians. In these cases the drug was taken by mouth or hypodermically. In the same year cases were reported from Paris by Manquat and Blondell (3), and in subsequent years by Comar and Buvat (4), Duhem (5), and others. In 1911, Brooks and Mixell (6), in the United States, and Symes (7), in England, drew attention to the subject. The cases seen by the first named authors had acquired the habit from the use of cough mixtures. Phillips (8), in 1912, so far as I can discover, was the first medical writer to describe the snuffing habit as it then existed in the tenderloins of the Middle West. Blanchard (9), in 1913, was the first to notice the prevalence of the habit among soldiers, to whom it was known as "happy dust." Other references of minor importance occur in very recent medical literature.

My conclusions from a study of these cases as to the cause of the sudden and appalling increase in the heroine habit are as follows:

The severe laws enacted against cocaine two or three years ago favored the introduction of a drug which might be taken in the same way, either with or without the cocaine. In the former case it tended to overcome some of the unpleasant features of the cocaine habit.

The suppression of opium dens by the police had a similar though a less marked effect.

Those addicted to the drug seemed to have a proselytizing zeal which is difficult to account for, except in the case of those who were vendors.

The psychology of the "quarter" and the peculiar ideas of "habit" persuaded many persons that they had an addiction when they clearly had not as yet acquired it.

The business was well organized and included

manufacturing chemists, middlemen, druggists, and peddlers.

The epidemic arose quite independently of physicians, and until recently was unknown to them.

117 SOUTH TWENTY-SECOND STREET.

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TONSILLOADENECTOMY AND THE CONTROL OF THE HEMORRHAGE.*

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The method of removing the faucial tonsils has undergone numerous changes since the invention of the tonsillotome, which was a great achievement and made possible and comparatively safe a heretofore very difficult operation. With this instrument, when the tonsil was not adherent to the pillars, it was sometimes removed in its capsule, intact, and much more frequently about one third of it was left *in situ*. This segment was found to be a source of irritation, and numerous punches were devised for its removal. As the operators became more expert, dissection with scissors was added to the process, and the wire snare, hot or cold, came into use, finally displacing the tonsillotome. The snare is still the instrument relied upon by the majority as the final step in the operation. I find that the snare is no more necessary than the tonsillotome or the guillotine.

The method is simple and requires less time than the snare. If the patient is a child, it receives general anesthesia and is placed in a recumbent position and on its left side, with the head two or three inches lower than the body. Holding the mouth open with a Jansen gag, the tonsil is grasped with a Bruening's septum forceps; drawing it well out from the pillars, and depressing the tongue with the blades at the same time, a vertical incision is made through the mucous membrane at the superior margin of the capsule with a Cryer's periosteal elevator, and as the mucous membrane slips away from the capsule, dissection is continued, stroke after stroke, following the capsule, not changing the grip on the tonsil, which should be about the middle, and the tonsil is readily freed from the pillars. Not infrequently the attachment at the base is too firm to yield readily to the dissector; in such cases, it may be severed with an ordinary, rather long handled bistoury. After the removal of the tonsil any bleeding vessels are grasped with a Jackson hemostat and tied with a silk suture. To locate the troublesome vessel, seize the two pillars at their superior margin with Mayo's dressing forceps, and evert them, thus exposing the tonsillar fossa.

The pharyngeal tonsil or adenoids are removed by

a Barnhill curette, using the incisor teeth of the inferior maxilla as a guide to start the cutting, and by a sweeping motion carrying the handle upward; the adenoids will be removed nicely balanced on the curette. The hanging edges are removed by a Juarez or French forceps. The posterior nares are curetted through the nose with a Kyle's ring curette. The inferior turbinates are broken with a Sinexson's nasal dilator. At the completion of the operation, a five per cent. tincture of iodine is applied to the wounded surface. Careful dissection of the mucous membrane is important, as the annoyance of a dry throat after such an operation is due not to the loss of the tonsil, but of the mucous membrane and the lymphatics attached to it.

The technic of tonsillectomy is well understood and the results are practically the same with the snare or without, but the proper surgical control of hemorrhage has not kept pace. It is interesting to note that it is undergoing much the same development as in general surgery. For many centuries the mortality of war, wounds, and amputations was increased exceedingly by uncontrollable hemorrhage. Escharotics, chemical and thermal; internal remedies, pitch, hot and cold, were applied; pressure, acupressure, compression, and torsion all were tried and all were more or less successful, but very unreliable and disappointing. The oral surgeon has employed, like the general surgeon, escharotics, chemical and thermal, internal remedies, compression, and torsion.

The tourniquet invented in the early days by Fabrizan von Hindle (sixteenth century), later improved by Morel, and finally superseded by Louis Petit's screw tourniquet, has found its equivalent in various tonsil hemostats of the oral surgeon of the twentieth century. The one in general use has one blade in the pharynx, while the other blade makes counter pressure externally.

The introduction of the ligature into surgery in general, has a long history behind it. In Trajan's time, near the close of the first century, Rufus, of Ephesus, used it and wrote of it. Galen also resorted to it about the same time or a little later. In the middle of the fifteenth century, Lan Franchi, of Milan, advocated its use. Gross, that eloquent surgeon, describing in his *System of Surgery* the development of the use of the ligature, quotes Paré as saying: "For the good of mankind and the improvement and honor of surgery, I was inspired by God of this great thought," and himself adds, "Paré himself fully appreciated the utility of this invention, but his contemporaries spared no pains to undervalue it and to revile and persecute its author, subjecting him to the humiliation of searching the writings of the ancient fathers of medicine for traces of the use of the ligature as a justification of his practice. Goumelen, the jealous and malignant president of the College of Physicians, Paris, made himself particularly conspicuous on the occasion and thus earned an infamous reputation, for the only act by which he is now remembered is his bitter and unrelenting persecution of Paré, rendered immortal by his great achievements."

The use of the ligature by the oral surgeon for the control of hemorrhage after a tonsillectomy, is nothing more than the adoption and adaptation of a

*Read before the Philadelphia Laryngological Society, March 2, 1915.

well known surgical procedure to a special region. As the general surgeon has had to contend with substitutes, so have we contended with local and internal styptics, pressure and counterpressure, and complicated methods, such as sewing the pillars together or using a needle to carry the thread around the artery and through the tissue, a more difficult and dangerous operation than that of simply grasping the artery with a forceps and tying in the ordinary way.

From the fact that the capsule throws numerous filaments along the entering arteries, they do not contract as readily as the ordinary artery, hence are more apt to bleed freely. In the epipharynx, after the removal of the adenoids, one may sometimes have troublesome bleeding. About a year ago, a very able surgeon related a case in which a child lost its life in this way, he not having been notified of the bleeding until after the child's death. Last summer, eight hours after an operation, I was called to the hospital for a similar case and after giving anesthesia, by drawing the uvula forward, I readily discovered the bleeding vessel and tied it, after which there was no more bleeding, and in a few days the child had entirely recovered from the operation and the loss of blood.

Allow me to emphasize this dictum: Never allow a patient to leave the operating table until all bleeding is controlled, which is to be done by tying every bleeding vessel. There is no other safe method; one may perfect oneself by practising with a handkerchief in a tumbler, grasping it with a forceps, and tying.

52 WEST STATE STREET.

THE ELIMINATION OF SOLUBLE RADIUM SALTS TAKEN INTRAVENOUSLY AND PER OS.

By HARVEY A. SEIL, PH.D.,
Pittsburgh,

CHARLES H. VIOL, PH.D.,
Pittsburgh,

AND M. A. GORDON, B. CHEM.,
Pittsburgh.

The elimination of soluble radium salts after subcutaneous injection of the salt into dogs was studied in two cases by Brill and Zehner (1), and the data in Tables I and II represent their results:

TABLE I.—18.4 MICROGRAMS RADIUM ELEMENT AS CHLORIDE INJECTED SUBCUTANEOUSLY INTO A DOG WEIGHING 9 KG.

Day.	Feces micrograms.	Urine micrograms.	Radium (element) content of Feces. Urine	Per cent. of the injected radium.
1	None	0.046	.....	0.02
2	3.34	?	18.2	?
3	0.21	0.0001	1.2	0.001
4	?	0.00007	?	0.0004
5	0.0378	?	0.2	?
6 and 7	0.0001	0.00005	0.001	0.0003
11	0.0001	0.0007	0.008	0.004

TABLE II.—47 MICROGRAMS RADIUM ELEMENT AS CHLORIDE INJECTED SUBCUTANEOUSLY INTO A DOG WEIGHING 8.5 KG.

Day.	Feces micrograms.	Urine micrograms.	Radium (element) content of Feces. Urine	Per cent. of total radium injected.
1	0.97	?	2.1	?
2	0.53	0.27	.....	0.5
3	0.38	0.031	0.9	0.07
4	0.34	0.040	0.9	0.09
5 and 6	0.029	0.0002	0.06	0.004

From these data Brill and Zehner conclude that

the excretion of subcutaneously injected soluble radium salts takes place mainly with the feces, and only in a slight measure in the urine. During the first four days after injection four to nineteen per cent. of the injected radium is excreted, and after that the rate of excretion is very slow. The results of Brill and Zehner are approximate, since the figures are not very concordant.

A great many experiments have been carried out on the effects of intravenous injections of soluble radium salts, and on the effects of radium solution per os, and it was important therefore for comparative purposes to know the relative rates of excretion of the radium when using either of these methods. The intravenous solution usually consists of fifty micrograms (0.05 mgm.) of radium element in the form of radium chloride dissolved in two c. c. of normal physiological salt solution. The solutions used for administration per os, consist of a solution of radium chloride in two ounces of distilled water, each bottle of the solution containing two micrograms (0.002 mgm.) of radium element.

A study of the effects of radium on the metabolic processes in normal man is being made by one of us¹, and the study of the elimination of intravenously injected radium was made on the subject of this metabolic study. A normal man of about twenty-three years, who had been on a diet, was given 100 micrograms of radium (element) by injection into the cephalic vein, on December 11, 1914. Table III shows the elimination of radium in the feces and urine.

TABLE III.

Day.	Micrograms radium element in Feces.	Urine.	Micrograms radium element Combined.	Micrograms of radium remaining.	Per cent. rate of elimi- nation of radium.
1	Injection	100 micrograms	radium element.		
2	17.9	1.75	19.65	80.35	19.65
3	16.6	0.22	16.82	63.53	20.9
4	7.12	0.065	7.185	50.34	11.3
5	1.6	0.040	1.640	54.70	2.9
6	1.6	.....	1.6	53.10	2.9
7	0.98	.....	0.98	52.12	1.8
8	0.58	.....	0.58	51.54	1.1
9	0.44	.....	0.44	51.10	0.85
10	0.42	.....	0.42	50.68	0.82

The radium determinations were made by the radium emanation method, using aliquot parts of the feces and urine. Cold concentrated nitric acid was added to the feces samples, and after the first violent reaction was over, the sample was heated with more nitric acid. Sulphuric acid was then added, and the clear solution heated until free from nitric acid. The urine samples were similarly treated to secure a clear solution in strong sulphuric acid. The samples were diluted with pure sulphuric acid and aliquot portions of the sulphuric acid solution served for the radium analyses. This method of preparing the samples is superior to incineration since there is no loss of radium salt by volatilization.

From the data in Table III, it is clear that at first there is a rapid elimination of the radium, mainly in the feces. The absolute amounts of radium eliminated from day to day will depend somewhat on the quantities of feces and urine excreted. Since the radium salts are not volatile, the only other manner in which they might be eliminated is in the skin secretions. The radium eliminated in the urine is so much less than that in the feces that it is not un-

¹The results of this study will be reported later. S.

reasonable to expect that the amount eliminated through the skin will be very small. This point is being examined and will be reported on later. Radium is an element closely related chemically to barium and the other metals of the alkaline earths, strontium and calcium. From chemical considerations it would be expected that the radium held in the body, would be found wherever other alkaline earth elements are found. The bones should therefore contain the largest amounts of the radium, and analysis in many cases shows that the bones (2) do have the highest concentration of radium of any of the tissues. Following the bones, in the order of concentration of radium, come the liver, lungs, blood-vessels, and spleen. The explanation of the rapid fall in the daily rate of excretion of the radium from twenty per cent. of the radium present during the first two days to less than one per cent. of the radium present at the tenth day (cf. last column in Table III) lies in the gradual absorption of the radium in the various tissues. When injected into the blood stream, the quantity of radium (0.1 mgm. radium element equalling 0.13 mgm. of radium chloride or 0.14 mgm. radium sulphate) is so small that it would hardly give a visible precipitate in the form of sulphate. As a result the radium is carried in solution or suspension in the blood until it either becomes absorbed by the various tissues in proportion to their alkaline earth salt content and to the accessibility of the blood to the organ, or is eliminated.

To check the results in Table III, a similar intravenous injection of 100 micrograms of radium was made in the same man, February 3, 1915. By this date the radium eliminated as a result of the first injection on December 11, 1914, was assumed to be negligible, and the analytical results as shown in Table IV show this to be the case.

TABLE IV.

Day.	Micrograms radium element in feces.	Micrograms radium element in urine.	Micrograms radium element combined.	Micrograms radium element remaining.	Per cent. rate of elimination of radium.
1.....	100 micrograms radium element injected.				
2.....	18.4	1.4	19.8	80.2	19.8
3.....	12.58	0.16	12.74	67.4	15.9
4.....	3.34	0.065	3.40	64.0	5.0
5.....	1.68	.....	1.68	62.3	2.6
6.....	0.54	.....	0.54	61.8	
7.....	1.07	.....	1.07	60.1	av. 1.82
8.....	0.45	.....	0.45	59.7	0.75
10.....	0.30	.....	0.30	ca. 59.0	ca. 0.5
12.....	0.20	.....	0.20	ca. 58.5	ca. 0.34
21.....	0.14	.....	0.14	ca. 57.0	ca. 0.25

The results in Table IV are in good accord with the data in Table III.

To determine the rate of elimination of radium taken per os, one of us (S.) ingested a solution containing fifty micrograms of radium element. Through a blunder on the part of a janitor, the feces samples for the first two days were interchanged and the sample for the second day was thrown out before the exact weight was determined. The data in Table V, therefore, are in part only approximate and are recorded simply for a comparison with the data obtained in a similar experiment, made later, the results of which are given in Table VI.

²Results for two days average; because total weight of feces on sixth day was only 25 gm., and weight of feces on seventh day was abnormally high.

TABLE V.—ELIMINATION OF RADIUM; 50 MICROGRAMS OF RADIUM ELEMENT TAKEN BY MOUTH, MARCH 2, 1915.

Day.	Micrograms radium in feces.	Micrograms radium in urine.	Micrograms radium combined.	Micrograms radium remaining.	Per cent. rate of elimination of radium.
1.....	Radium taken at midnight.				
2.....	7.0	0.124	7.72	32.38	17.1
3.....	ca. 16.0	0.015	ca. 16.0	ca. 16.28	ca. 50.0
4.....	2.9	.....	2.9	ca. 13.38	ca. 18.
5.....	0.38	.....	0.38	ca. 13.0	ca. 3.

TABLE VI.—ELIMINATION OF RADIUM; 50 MICROGRAMS RADIUM ELEMENT TAKEN BY MOUTH, MARCH 9, 1915.

Day.	Micrograms radium in feces.	Micrograms radium in urine.	Micrograms radium combined.	Micrograms radium remaining.	Per cent. rate of elimination of radium.
1.....	Radium taken about midnight.				
2.....	17.9	0.102	18.0	32.0	36.0
3.....	12.2	0.013	12.2	19.8	38.1
4.....	2.19	.....	2.19	17.61	11.0
5 and 6.....	0.626	.....	0.626	16.98	3.5

Radium taken into the body is continually disintegrating with the formation of the gaseous radioactive substance, radium emanation. This gas is carried by the blood to the lungs, where the emanation passes out of the blood by diffusion, and is lost from the body in breathing. The amount of emanation in the exhaled air was measured after the first experiment on radium taken by mouth, the data in Table VII being a record of the results.

TABLE VII.—CONCENTRATION OF RADIUM EMANATION IN THE EXHALED AIR, AFTER TAKING 50 MICROGRAMS OF RADIUM (ELEMENT) BY MOUTH, MARCH 2, 1915.

Day.	Hour.	Radium emanation per liter of air	Milli-microcuries.	Maché units.
March	3	10.40 a. m.	0.588	1.59
	3	4.50 p. m.	0.551	1.49
	4	10.30 a. m.	0.182	0.49
	5	2.50 p. m.	0.070	1.19

CONCLUSIONS.

Taken by mouth, a much greater part of a soluble radium salt is eliminated during the first three or four days, but after that, the rate of elimination is sensibly the same as when the radium is introduced by intravenous injection.

The main part of the radium is eliminated in the feces. When the radium is taken by mouth, a smaller proportion of the excreted radium is found in the urine than when the radium is injected intravenously. From twenty-five to thirty-five per cent. of the radium taken by mouth remains in the body four or five days after ingestion. From fifty-five to sixty-five per cent. of the radium injected intravenously remains in the body four or five days after the injection. From this time on, the elimination proceeds at about the same rate in each case. By the tenth day after taking the radium, the rate of excretion is less than one per cent. This results in an exceedingly slow elimination of the last of the radium, the process going on for months. The first rapid elimination takes place before the radium has been "fixed" in the tissues. After that has taken place, the excretion is much slower, and even the amount of emanation which is given off, is less. It is a well known fact that solution of radium salts can be completely deemanated by passing a current of air through the solution. Even the dry radium chloride and bromide (soluble salts) give up quite large proportions of their included radium emanation. Insoluble radium sulphate, even when finely divided, holds the emanation very strongly, so that less than five per cent. of the emanation escapes from the salt.

From the foregoing results, a rational method for maintaining a certain amount of radium in the system can be suggested. If for example, it is desired that about fifty micrograms of radium be maintained in the body—an intravenous injection of about 100 micrograms is made, and after ten days, it will suffice to take two micrograms of radium by mouth, every few days, in order to make up for the radium being lost. Radium solutions taken repeatedly by mouth have a cumulative effect. However, the elimination of radium taken by mouth is about twice as rapid as when the radium is injected intravenously. Therefore, there will be required about twice as much radium to produce a given result when the radium is taken by mouth. This is in accord with the clinical findings of many workers, who have obtained results more rapidly with smaller total quantities of radium injected intravenously than with larger total quantities of radium taken by mouth.

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BACILLUS BULGARICUS IN DIABETES MELLITUS.

Reasons for Failure in Its Use.

BY PHILIP HOROWITZ, M. D.,
New York.

I have read with no little regret the conclusions set forth in an article entitled, *Diabetes Mellitus Treated with Fluid Cultures of the Lactic Acid Bacillus*, published in the *Journal A. M. A.* for February 6, 1915, based on the very slim premises afforded by four cases, treated for a period averaging between two and three weeks. While the scrutinizing thinker will immediately recognize the weakness of the premises on which those conclusions are based, many a hasty reader will be led to deprive himself of a valuable adjunct to the treatment of so unresponsive and serious a condition as diabetes.

As two papers of mine were referred to in the opening sentence of the article, I feel it my privilege as well as my duty to the profession, to make some comment on the data set forth. In the paper which I read before the Academy of Medicine of New York, May 19, 1914, dealing with 102 cases of diabetes, I took special pains to emphasize to my colleagues the fact that I had found it impossible to attain satisfactory results with either the use of *Bacillus bulgaricus* independently of the proper diet, or the use of the proper diet without the bacillus. I can produce fifteen cases to every one of the four set forth, to show that the combination of the proper diet and the proper dose of *Bacillus bulgaricus* will produce positive results.

While the writer of the article referred to appears to lay great stress on diet, the adaptation of the diet to the particular case in hand seems to have been not considered at all. Again, the adequacy of the dose of *Bacillus bulgaricus* to the particular case, seems to have been entirely ignored. A case that in

my opinion should receive at least sixty-four c. c. of the most exuberant culture of *Bacillus bulgaricus* can hardly be expected to show results on thirty c. c. Attention to hygiene, care of the bowels, neutralizing an existing acidosis, and exercise are not touched upon, yet these are indispensable to the results that proper care and regimen in conjunction with *Bacillus bulgaricus* bring about.

Let us analyze the data given and see on what the writer based the conclusions as to the worthlessness or usefulness of *Bacillus bulgaricus* in diabetes, are founded. Four cases are given, one of which is borrowed from another physician, who gives what appears to be a modification of von Noorden's oatmeal treatment. The doctor proposes to have us accept his opinion of a treatment by giving it, such as it was, in one case for eleven days; in a second for twenty-two days, and in the third for thirty days. The first patient receives thirty c. c. of culture a day when he should have received at least sixty-four c. c. a day. The second patient received thirty c. c. when he should have received from sixty-four to 128 c. c., and the third received what would have been the proper dose if the case had not been complicated by a marked acidosis, but under those conditions should have had not less than 128 c. c. a day.

As to the diet permitted in these cases, assuming that the diet given had a carbohydrate intake of only fifteen grams, it might have been suitable in Cases I and II, but it surely should have been the last thing on earth to give in Case III; first, because the carbohydrate intake was too low, and, secondly, because the enormous quantity of butter and butter fat in so marked an acidosis was probably responsible for the ultimate diabetic coma and death. The amount of fat allowed in the diet was, in my opinion, also responsible for the appearance of acetone and diacetic acid in Cases I and II. Anyone who has treated diabetic cases complicated by acetone and diacetic acid, especially as marked as reported in Case III, knows how dangerous it is to give butter and butter fats under those circumstances. Still the doctor allowed two ounces of butter a day, four ounces of sweet cream, and two ounces of cheese, which contains approximately about half an ounce of butter fat, beside three ounces of bacon and three ounces of ham, and blames the inefficacy of *Bacillus bulgaricus* when his patient gets into a comatose condition and dies.

As to the use of sodium bicarbonate or other alkali to neutralize the acidosis, no mention is made. Perhaps it was not deemed necessary. Apparently the doctor relied upon the small dose of culture, the giving of almost four ounces of butter, and the grace of God to take care of the acidosis.

The attending physician in Case IV gives what appears to be a modification of von Noorden's oatmeal diet. The amount of culture given in this case is forty-eight c. c. per day. In similar cases I give not less than sixty-four c. c. and go up to 128 c. c., basing the doses on my experience in over 200 cases treated with *Bacillus bulgaricus*. No mention is made of the amount of fat permitted, unless one is to suppose that the regulation amount advocated with the von Noorden diet has been followed here. The data as to the treatment and diet are too vague to permit of analysis of this case.

I will take pleasure in sending to any physician who may desire to go over it, a schedule giving the complete details of thirty cases carried to completion.

65 WEST SEVENTY-THIRD STREET.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLVII.—How do you treat diarrhea? (Closed.)

CLVIII.—How do you treat heartburn? (Answers due not later than May 15th.)

CLIX.—What is the proper role of the dentist in the therapeutics of internal diseases? (Answers due not later than June 15th.)

CLX.—How do you treat flatulence? (Answers due not later than July 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not required) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLVI was awarded to Dr. S. H. Enslinger, of York, Pa., whose article appears below.

PRIZE QUESTION CLVI.

THE TREATMENT OF PELLAGRA.

By S. H. ENSLINGER, M. D.,
York, Pa.

The only treatment is to remove the causes of the intoxications, and of the failure of resistance; and, thereafter, to treat the symptoms on general principles. The public should be taught the early symptoms of the disease. At this stage it will yield to treatment, but if neglected, the symptoms increase in severity and end in insanity or general debility, which entirely unfits the individual for work.

Many drugs have been used in the treatment of pellagra, and many drugs have won an unjust reputation. It must be borne in mind that it is a disease of seasonal variations and that it is the rule for improvement to occur at certain seasons regardless of the treatment. The only drug of any value is arsenic. The method of Babes, Veselii, and Gheorghus I have found very satisfactory and to give very good results. Simultaneously give hypodermically 0.5 gram (seven and a half grains) of atoxyl, an inunction of five grams (seventy-five grains) of a one to fifty preparation of arsenic trioxide in wool fat, and 0.0013 gram (one fiftieth grain) of arsenic by mouth, three times daily. This treatment is repeated at varying intervals, depending on the severity of the attack. There are numerous cases classified as hopeless on record as having been treated by this method, in which more

than two years have elapsed without recurrence, even though there was no improvement in the general hygienic conditions, nor did the patient cease the use of a poor quality of corn, though so advised.

It is not usual that such active treatment is necessary. From 0.33 to 0.5 gram (five to seven and a half grains) of atoxyl given every fourth day, gradually lengthening the interval between doses, is usually sufficient. Atoxyl must be given in cold water, as it decomposes upon heating. The drug should never be administered by the mouth, as it is decomposed by the acid gastric juice. Optic nerve atrophy has been reported from the use of atoxyl, and care should be taken to have the eyes watched by an oculist during this treatment. I have never seen it occur, however, in a fairly large number of cases actively treated. The presence of albumin is always a contraindication to the use of atoxyl. Symptoms of acute arsenical poisoning do not occur unless the preparation of the hypodermic injection is made with hot water, thereby causing decomposition of the drug. The results obtained by the use of atoxyl as above directed have been very gratifying. Atoxyl is of no benefit in the fulminating type of the disease.

I have used salvarsan with fairly good results, but I do not consider it the equal of atoxyl. Fowler's solution and Donovan's solution have both been employed, and there can be no doubt of their efficacy in mild cases where an immediate arsenic impression is not necessary. In severe cases their usefulness is more limited because of the time required in reaching a sufficiently large dose to be of any avail.

Diet in pellagra is of great importance, and one of the most difficult parts of the treatment. When stomatitis is violent, as is so commonly the case, the patient will refuse all foods. In cases with gastric disturbances, especially when vomiting occurs, mouth feeding is difficult; and the diarrhea which usually accompanies any of the other digestive disturbances, makes rectal feeding impossible. In cases with intractable diarrhea, it is exceedingly difficult to find any form of nourishment that can be borne. In all cases milk should be given, if possible. If large curds are found in the stools after taking milk, peptonization should be tried. After plain or peptonized milk has been well borne for several days, it is advisable to add a raw egg to each milk feeding. In some cases buttermilk is more acceptable and may be given freely.

A mixed broth composed of a cereal, such as rice or barley, and meat, beef, mutton, or chicken, will be of service. An absolutely liquid diet should be depended on for only a short time; and for it should be substituted a diet composed of milk toast, cereals and cream, and soft boiled eggs. Later rare beef, dry toast, and potatoes may be added. Fruit and vegetables should be withheld until convalescence is well established.

To meet various symptoms, a multitude of drugs have been tried and found wanting. For stomatitis the best is cleanliness of the mouth. Again, for the diarrhea, all the astringents, especially bismuth and tannic acid, have been tried, but ineffectually.

Hydrotherapy has been advocated by many writers on the treatment of pellagra; all forms of baths

have been tried. Such treatment should be given only by an expert; otherwise it may do much harm owing to the debility of the patient.

Radical change of scene and climate are often of the greatest benefit. It is no uncommon thing for severe cases to improve greatly and even to go on to recovery, after such a change, and without other treatment.

Finally, the most important feature of the whole subject is *rest*. It is no less important here than in tuberculosis, and especially, as long as there is any intestinal disturbance, rest is imperative. It must be remembered that hemorrhage may occur in pellagra from an intestinal lesion, and hemorrhage may be fatal. Beside the intestinal conditions, there are many nervous manifestations benefited by rest in bed, and in many of the cachectic pellagrins it is imperative.

409 WEST MARKET STREET.

Dr. L. P. Pharr, of College Park, Ga., observes:

There is hardly any disease, the manifestations of which are more diverse and varied than those of pellagra, affecting seemingly, not only the general nervous system, but all the secretory and excretory organs and all the mucous membranes of the body.

While the proper control of the diet of these patients seems to be by far the most important part of the treatment, the administration of alkalies is beneficial as a routine measure. Sodium bicarbonate may be given in doses of fifteen grains one hour before meals; an equal amount of sodium phosphate should be added when constipation is present, a condition very apt to develop sooner or later. I have also found gelsemium, given in the dose of two or three drops of a good fluidextract (from the green root), a most useful drug for relieving the nervous and mental symptoms. In several cases where morphine had been used in the effort to secure relief from the severe burning pains in the hands and feet, this drug gave prompt relief and there was no further desire for an opiate.

Menorrhagia and other symptoms indicating pelvic complication are very commonly present in female pellagrins, but surgical measures should never be resorted to until medical and dietetic treatment has been given a thorough trial.

For severe epigastric or abdominal tenderness, bismuth is sometimes a useful adjunct to the other treatment.

Diarrhea has not required any treatment in addition to that mentioned; it has not proved troublesome in any except two cases ending fatally.

Constipation is generally present at some time during the course of the disease, and may necessitate the use of castor oil or some other laxative in addition to the sodium phosphate previously mentioned.

In cases in which the stomatitis was especially severe I have found fluidextract of hydrastis a useful remedy as a mouth wash, six drops in an ounce of water.

The diet in these cases must be generous and with rather short intervals between meals. Eggs and meat should be allowed in moderation, but should not be fried. A small amount of white sugar may be eaten, but all other sweets, pastries, and "soft" drinks should be strictly forbidden. Light bread

and all vegetables are allowed. On this diet we find that the intestinal fermentation is relieved in a short time; we should keep these patients under strict supervision for a considerable period of time, however, in order to prevent their eating the injurious articles of food which their perverted appetites crave.

This method of treatment and diet was suggested to me about two and a half years ago by Dr. Roy Blosser, of Atlanta. I have used it in about seventy cases and with most gratifying results in all except two far advanced cases which ended fatally. About forty of my patients have now been under observation for more than a year, and there have been only a few slight recurrences, which were not troublesome to handle.

Dr. F. R. Newman, of Wheeling, W. Va., writes:

Pellagra is due, perhaps, to the use of altered maize; it occurs extensively in Italy and Spain, and recently has made its appearance in the southern part of the United States. It may be acute or chronic, and is characterized by general debility, pains in the cerebrospinal region, insomnia, severe digestive disturbance, diarrhea of the dysenteric type, pronounced nervous symptoms, and severe photophobia, though the clearest manifestation of the disease is the pellagra erythema, followed by desiccation and exfoliation of the epidermis, which becomes very rough and dry. Occasionally crusts form, beneath which there is suppuration. In the early stages the symptoms are indefinite and misleading, but as the disease advances they become more pronounced. For several years I was a practitioner in Memphis, Tenn., and was fortunate enough to have the second case that appeared in that city. After careful clinical observation of several cases, I feel confident that the majority will be benefited by the following treatment. For convenience the treatment may be divided, 1, into that of the acute and, 2, that of the chronic stage.

1. Complete isolation; regard it as a communicable disease; confine the patient in a well ventilated, darkened room, allowing only an enamel bed, chair, and table. Screen both doors and windows. Mop the floor daily with a strong solution of creolin; sterilize thoroughly all utensils and crockery; the urine, stools, and sputum should be carefully disinfected with a strong solution of chloride of lime before being disposed of. The cerebrospinal symptoms are best controlled with the bromides, chloral, or gelsemium. The persistent conjunctivitis and photophobia are best controlled with mild collyria of boric acid, sodium chloride, and distilled or rose water. The nose and throat should be carefully sprayed, several times a day, with a solution of eucalyptol. The affected parts are carefully sponged with a solution of permanganate of potassium, which acts as an antiseptic and deodorant. If pus is present, peroxide of hydrogen will be found useful. After thoroughly cleansing the affected parts, I apply an ointment consisting of tannic acid, sulphur, ichthvol, and wool fat, which is soothing and healing. For the persistent burning and itching of the hands and feet, nothing will be found better than bathing in a strong solution of sodium chloride, morning and night. After a calomel purge,

the severe and persistent diarrhea may be controlled with some of the following drugs: Zinc sulphocarbolate, salol, bismuth, betanaphthol, dilute sulphuric acid, and deodorized tincture of opium. Fowler's solution in five drop doses pushed to tolerance, is indeed a wonderful remedy, also iron, quinine, and strychnine, will be found beneficial. As the disease advances and the patients do not succumb to the ravages of the disease, they pass into the chronic stage and may linger for years.

2. Sunshine, fresh air, a wholesome nutritious diet, avoidance of excitement and worry, cheerful surroundings, Fowler's solution, codliver oil, and general tonics. Treat the symptoms as they arise; this is about all that can be done.

Therapeutic Notes.

Applications of Phototherapy.—E. C. Titus, in the *Providence Medical Journal* for March, 1914, asserts that the lining of an electric light cabinet should be of white blotter, and not be a mirror surface. The source of light should be 100 forty watt tungsten lamps, controlled from within by switches so that either one half or the full number of lights may be used. The cabinet should be open at the top and also have an air vent below. The effects of the baths are: 1. To induce intense cutaneous hyperemia and thus reduce deeper congestion; 2, to increase elimination through the lungs and skin. In chronic rheumatoid conditions the general electric light bath proves of material aid to other treatment, joint pain and stiffness, as well as toxemia, being markedly benefited. In chronic gout, it favors absorption of urates by augmenting the peripheral circulation. Its effect has been much more pronounced and prolonged, in the author's experience, than that of a hot bath. In nephritis the light bath is a better auxiliary measure than the usual hot pack or steam bath for reducing the work of the kidneys. There is no depressing aftereffect. In diabetes, the bath is particularly adapted to patients with a dry skin and various cutaneous eruptions, especially eczematous, and with high arterial tension. In obesity, its property of heat penetration induces absorption of fat. For aborting or greatly ameliorating the course of a beginning cold, Titus has become convinced of the superiority of the light bath to the customary hot bath and diaphoretic remedies. Locally, light treatment has also proved valuable, in the author's experience, in a number of conditions. For the relief of spinal congestion, whether associated with local infection or not, the rays from a 5,000 candle power marine searchlight (with its glass front window removed), applied for thirty minutes at a distance of ten feet, produce a marked and lasting effect. In the acute stages of bronchitis or in pulmonary congestion, light applications to the chest afford prompt relief from pain and respiratory distress. In chronic bronchitis prolonged daily applications, until tanning of the skin results, are beneficial, and in pleurisy with effusion, the measure promotes absorption of the fluid. In myalgias, neuritis, and even herpes zoster, more rapid and lasting relief is obtained than with the analgesic drugs. In various septic conditions, such as phlebitis

following labor or intrapelvic operations, as well as in infected wounds of the extremities, cellulitis, furuncles, and varicose ulcers, local light treatment was also found of great value. The author believes his experience has shown that the deleterious effects of the x ray can be prevented by following its use with an application of the rays from a marine searchlight.

Treatment of Ocular Tuberculosis.—A. Darier, in *Bulletin de l'académie de médecine* for January 19, 1915, reports his experiences with tuberculin and antituberculous serums in the treatment of tuberculous conditions of the eye. To inject tuberculin merely because a case is one of tuberculous iritis is wrong. The various phases of the morbid process, as well as the peculiarities of individual reaction, must be taken into account. In a general way, antituberculous serums are indicated in acute infectious with outspoken manifestations and fever; vaccines are indicated in sluggish, chronic, and well localized processes. In many instances a cure is not obtained if the tuberculin used has not been properly selected or not administered for a sufficiently long period. In such instances, moreover, a better result might be obtained by using Marmorek's serum first and later tuberculin. Of the tuberculins the so called B. E. or bacillus emulsion is the most active, but also that which most easily induces excessive reactions. Therefore it is advisable to begin all treatments with the milder Swiss tuberculin of Beranek, T. B. K., or the Russian tuberculin. Where the organism becomes too rapidly accustomed to these preparations, the bacillus emulsion may be used to terminate the course of treatment and diminish the chances of recurrence. In tuberculous ocular disturbances characterized by hyperemia, photophobia, lacrymation, and pain of considerable intensity, Darier recommends that a series of six to eight injections of two and a half drams (10 c. c.) of Marmorek's antituberculous serum be given, in conjunction with the customary antiphlogistic measures—leeching, atropine, and hot applications. With such treatment there is a strong likelihood that in three or four weeks the morbid process will have become so subdued that the treatment can be continued with tuberculin or immunizing bodies. General tonic treatment, comprising open air life and sunlight, codliver oil, guaiacol, and iodine preparations in large doses, should, of course, never be neglected.

Use of Pigskin in Extensive Grafts.—C. S. Venable, in the *Southwest Journal of Medicine and Surgery* for January, 1914, highly recommends the grafting of pigskin in cases where autografts are impracticable owing to the size of the area already denuded or inadvisability, for one reason or another, of subjecting the patient to the ordeal involved. His procedure is as follows: A young pig, two to six months old, is etherized, and the site from which the grafts are to be taken, preferably the rump, shaved and cleansed with soap, water, and a rag. The area is sponged with gasoline and finally with fifty per cent. alcohol or a one in 20,000 solution of biniodide of mercury (neither of these coagulating protein). In removing the graft, the skin is put on the stretch with hooks or clamps in the direction

in which it is to be sliced, and with a thin bladed razor, folded on its handle, strips of epidermis are cut with a sawing movement after the manner of Thiersch. These strips are transferred to the area to be grafted by holding two points fixed with needles to the denuded surface, the blade being meantime gently withdrawn and any remaining irregularities then teased out with the needles. When enough grafts have been applied the rubber impregnated open mesh splint of Davis or a freshly prepared paraffin mesh is placed over them and held by adhesive plaster beyond the edges and by multiple interrupted sutures throughout the area. This is covered with a simple dry gauze dressing, which is to be changed as often as it is soiled by the discharged fluids. The dressing should not include more than four to six thicknesses of gauze. About the third to the sixth day the sloughing epidermis is to be gently clipped away and the area exposed to the sun for about half an hour two or three times daily. The meshed splint is removed in ten or twelve days, and thereafter the site freely exposed for as much of the time as practical. While at about the fifth to the eighth day disappointment as to the success of the graft seems certain, the superficial squamous epithelium sloughing off, in a few more days the surface will begin to show a creamy white surface and then a healthy pink, the grafts having by this time manifestly taken.

The ultimate appearance of the grafts is good. The pigment soon disappears and no bristles are grown, the grafts having been cut in a plane superficial to the hair follicles. Should bristles by chance appear, their follicles will atrophy in a short time. The author has practised this method as one of election for nine years and has been enabled to attain from eighty-five to 100 per cent. of "takes" against thirty to seventy-five per cent. from the use of heterografts or grafts from others of the lower animals.

A New Plastic Operation for Entropion.—

Flavel B. Tiffany, in the *Post-Graduate* for March, 1914, is credited with devising a new procedure for the radical correction of entropion, which in his hands has yielded results far more satisfactory than the operations previously described. The procedure consists in grafting a band of skin from the eyelid into the intramarginal space—or narrow, flat surface between the two edges of each lid—which is thus broadened, while the lashes are mechanically wedged away from the eyeball. Either lid can be operated on, the technic being practically the same in the case of the superior lid as with the inferior. An incision, parallel to and about two mm. from the margin of the lid, is made from near the punctum to the outer canthus. The strip of skin to be grafted is next formed by making a second incision, parallel to and about three mm. from the first incision. The strip should be a little wider than the normal intramarginal space, and though dissected free from sub-jacent areolar tissue, is left attached at either end. The intramarginal space is then slit with a keratome at the conjunctival or mucous line, from the punctum to the outer canthus. The knife should go deep into the tarsus, and care be taken to include all the lashes with their papillæ in the outer flap.

After the hemorrhage has been well checked, the strip of skin separated for grafting is cut in its centre, a small opening into the artificial slot in the margin of the lid made on either side near the pedicle with the keratome, and the free ends of the graft passed through these openings and into the slot. If the strips prove too long, they may be shortened to the desired length and their free extremities united with a catgut suture—this being the only suture that the author employs in these grafts, as they are held sufficiently when imbedded smoothly in the slot. The living pedicle at each end and the lack of necessity for suturing are advantages of the author's procedure, which when correctly carried out, effects a permanent cure and in many cases improves the appearance of the lid.

Treatment of Botulism.—R. L. Wilbur and W. Ophüls, in the *Archives of Internal Medicine* for October, 1914, describe the therapeutics most efficacious in a series of cases they treated. The stomach should be emptied thoroughly with a stomach tube, the large bowel washed out, and a brisk cathartic—castor oil or magnesium sulphate—given by mouth. Absorption of the toxin being slow because of intestinal paralysis, the authors emphasize the fact that these measures should be carried out even where the case is seen only several days after ingestion of the toxic food. The patient should be kept absolutely at rest, abundance of water supplied—by rectum or skin if necessary—simple food given, and great pains taken to avoid aspiration pneumonia. Strychnine appeared of value in the cases of the authors in improving the activity of the disordered nerve centres. Other stimulants are to be administered as the occasion presents. Even where the condition already seems hopeless, a hard fight should be kept up against the disease, even to the extent of resorting to prolonged artificial respiration in case of respiratory failure. No specific serum, such as those prepared by Leuchs and others, was used by the authors, but they seem confident that if these serums could be kept in various centres in the country and used promptly where the occasion presented, successful results would be obtained.

Treatment of Uterine Hemorrhage.—Focke, in *Therapie der Gegenwart* for February, 1914, advises the administration of digitalis in cases of bleeding from the uterus, including menorrhagia and hemorrhage in parturition. The dose should be about the same as or slightly less than in heart disease. The effect of the drug in arresting the bleeding is accounted for on the ground that, by causing certain changes in the circulatory functions, blood pressure is lowered in the venous system, from which, as a matter of fact, the hemorrhage originates.

Carbon Disulphide in the Treatment of Cancer.—P. Louge, in *Presse médicale* for February 28, 1914, is credited with the statement that injection of carbon disulphide into and around cancerous masses yields excellent results, nodules or enlarged lymphatics rapidly undergoing retrogressive changes under its influence. Pure carbon disulphide can, in man, be injected hypodermically to the amount of fifteen to thirty minims (one to two c. c.) without causing any unpleasant effect other than a sharp local pain, which gradually disappears.

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TYPHUS FEVER.

It may seem absurd to remark that typhus fever is typhus fever; yet this simple truth has escaped two classes of physicians. There are those who regard it as a bacterial disease, an entity. Probably they would like to trace the spreading branches of its tree to a single root, by discarding all the collateral roots together. By such a process Brill's disease, trim clipped but shadowy, stood forth. The expert, on the other hand, finds typhus fever a perplexing study, as Mühlens tells us at first hand. (*Münch. med. Wochenschr.*, 45, 1914.) The symptoms are various, and are often most difficult to disentangle; typhus fever manifests a sort of phantasmagoria of symptoms and visiting germs which give one quite a shock. The shape or form of the true microbe of typhus is still wholly unknown; it is not easy, as Gruber, Teubner, and Ficker say, to speak of this germ with anything like identifying power. Is the virus invisible? asks one of the best of bacteriologists, Nicolle (*Ann. Pasteur*, 1912, pp. 250 and 332). Much has been achieved in America on this subject by Ricketts and Wilder, Anderson and Goldberger. The virus, whatever it may be, is found in the blood; it may be conveyed from blood to blood; probably its seat is the leucocyte, as Nicolle conjectures. He found that it inhabits the body louse, and Goldberger and Anderson tell us that

head lice may be the medium of infection. Again, the protozoan forms are generally regarded as degeneration products of the blood cells.

More important practically is the long immunity that typhus fever gives to the people who get well. Nicolle was unable to obtain artificial immunity by means of virus inactivated at 60° C. Fixation of complement was noted by Gotschlich (*Med. Klinik*, March 28, 1915). The most that this discovery has done is to attain the negative success of distinguishing typhus from other diseases.

The historical method of studying typhus is ably employed by a Swedish writer, Hult (*Nord. Med. Arkiv*, Afd. ii, p. 104). It appears that typhus may be confounded with many other diseases—with dysentery, influenza, typhoid, tuberculosis, bubonic plague. Sometimes several diseases may be mingling their effects in an epidemic, as our correspondent recently informed us (*JOURNAL*, April 10th, page 741) is now the case in Servia. The epidemic of typhus, in 1788, in the Swedish port of Karlskroner, is another instance; here dysentery and typhoid united to increase the ravages of disease and the perplexities of doctors. It is a pity that the diagnosis should be so difficult. How easily have doctors missed it! Unfortunately the bacteriological examination of sputum, blood, and feces has but proved how many obstacles are to be overcome, how many difficulties there are in smoothing the path. It is a serious question, for nobody can tell when we may have to combat an epidemic of typhus. Bathing and clean clothes, physicians from the front tell us, are effective prophylactics. The reported discoveries of Plotz (see *JOURNAL* for May 30, 1914, page 1101; for April 24, 1914, page 853) seem likely to be definitely corroborated or refuted during the present war.

ERGOTHERAPY IN THE TREATMENT OF
THE INSANE.

Work treatment or ergotherapy is one of the most rational and productive procedures in the treatment of mental cases, yet it is a fact that work as a definite therapeutic measure is woefully neglected in most of our hospitals for the insane. It is generally acknowledged that work is absolutely essential for the physical and mental health and equilibrium of the normal individual. This applies in the same way to the mentally abnormal or disturbed. Work will both distract the mind from physical and mental disorders and stimulate its desirable functions. Used sensibly, it leads to happiness and to general physical, mental, and moral uplift. Even in the average young individual who is accustomed to work, the expense and idleness resulting from ill-

ness are apt to produce a mental depression, especially if there is superadded the contemplation of such a condition extending over many months or years. In our ordinary affairs of life we find it necessary to forget the past, meet the present, and look to the future. How much more necessary is this in the mentally disordered! So important is this phase of the problem, that a committee of the American Medicopsychological Association not long ago reported that "diversional occupation, scientifically and systematically applied, marks the standing of a hospital, and if neglected or omitted, the patients are not receiving the modern care and treatment to which they are entitled."

True, work for patients in hospitals for the insane is not new; but work from the therapeutic and not the purely economic standpoint is comparatively new. The tendency thus far has in the main resulted in making drudges out of those who showed themselves to be efficient and willing, while the rest were permitted to remain in idleness. For the latter, instruction, supervision, and tactful handling are essentials.

For the scientific and systematic application of ergotherapy, trained psychiatrists, vocational instructors, and nurses trained in the handling of mental cases are necessary. The nurses should not only be trained in the handling of mental cases, but should have sufficient instruction in occupational and diversional treatment to be of direct assistance in the general scheme. The vocational instructors should have direct charge of the work, under the supervision of the physician. The various occupations should ordinarily include instruction in sewing and fancy work, in playing games, paper folding, book binding, string work, basketry, embroidery, leather, wood, and metal work, ward, laundry, and kitchen work. It is of the utmost importance to individualize, not only for the special type of mental disease, but also for the particular patient; in other words, just as with the rest of humanity, we must consider the likes and dislikes of the patient as an individual. Of great importance also is it to see that the patients are put to work at something useful, so that they will not tire because of the futility of their efforts, and of instituting a system of rewards—extras in food and clothing, and increased liberty.

Dr. Eva Charlotte Reid (*Boston Medical and Surgical Journal*, CLXXI, 8, 300), who has made a special study of this question in the hospitals of California, comes to some very interesting and important conclusions. Given trained psychiatrists, vocational instructors, and trained mental nurses, it is her opinion that every patient, except the senile and parietic, can be taught some kind of use-

ful work which will not only make him partially or wholly self supporting, but will prevent habit deterioration. She further declares that there is no ordinary work that cannot be done by patients in hospitals for the insane, provided that the work is adapted to the individual case, and properly supervised after the patients have been instructed in its performance. Although the reeducation of the host of chronic patients who now populate our State hospitals may be too much to look for, it seems, as Dr. Reid concludes, that "new cases of dementia præcox can, however, with comparatively little trouble, be directed into better paths, to the end that the chronic wards in hospitals for the insane will be filled with patients who, although demented, will be quiet, tidy, industrious, and contented."

THE PATENT MEDICINE MAN AS A HEALTH TEACHER.

The physician may learn from the patent medicine man. The latter is no fool, though he may be enough of a knave. He is alert and up to date, and in so doing affords a good example to many an honest doctor of medicine. The patent medicine man also knows his patients often better than the straightforward physician knows his.

The maker of high priced mixtures has shown himself wide awake and in sympathy with his clientele in the fact that he has not failed to realize the importance of the conduct of his patient or patron during the time he is using his particular remedy. The remedy itself may be of little value, but the advice as to living which is to be read on the wrapper is often well worth the cost of the package, and worth more than a visit to a physician unless the physician lays down a regimen as well as writes a prescription. The physician too often does as his predecessors did; the patent medicine man puts out much the same drugs as formerly, but his literature is vastly changed. Some of the change is due to compulsion, but the compulsion is made the most of. One maker of medicines goes so far as to say that "well people need no medicine and should take none," and that "to recommend alcoholic stimulants for nervous troubles is, in our opinion, but adding fuel to flame. Wine or whiskey may bring a flush to the cheeks and make the person feel better for a short time, yet they would leave the nerves weaker than before." Such frankness is quite refreshing.

Most drug treatment, no matter who gives it, is directed at constipation, and some of the recent literature accompanying patent laxatives must, if followed, produce far better results than the equivalent drug dispensed by a physician unless accompanied by appropriate advice as to necessary bodily conduct.

Some physicians might well copy the suggestions forcibly laid down in this drug helping literature and hand it to their patients along with their own prescriptions. Obviously not all patent medicine men are so shrewd, and many depend on pure prevarication, but we are here simply giving the devil his due and warning the profession lest they fail to measure up to the devil in keenness as to the need and value of health teaching in modern medicine. Some of the proprietary people are so kind as to recommend that the purchaser of their wares consult a physician before taking them. This suggestion is as clever as it is kind.

The public ought, with honest effort on the part of the physician, to prefer him and his advice to that of an advertised proprietary preparation. A point in connection herewith, however, that we have emphasized before, is that the patent medicine man manages to secure the taking of his nostrum over long periods of time, a factor of great value in the case of alteratives, for example. Such drugs are slow in action, and the patient who receives them from a regular practitioner is likely to become dissatisfied after a week or two and seek relief elsewhere. The same patient, however, will stick to his "sarsaparilla" based on the iodides, for weeks, and obtain marked results; the gradual unloading of the system confers a feeling of euphoria which leads to the production of the remarkable testimonials with which we are familiar. All the emunctories are stimulated and metabolism is promoted by such prolonged treatment, which is something the regular physician finds it difficult to enforce.

THE WAR AND TEMPERANCE.

One of the most marked features of the European war, and perhaps, one of the most surprising, has been the wave of temperance which has flowed over the belligerent countries. Russia, once notoriously a nation addicted to drink, is today a soberer one. France has banned the sale of absinthe, the deadly narcotic which has wrecked the lives of so many brilliant Frenchmen. In Germany and Austria steps have been taken to control the traffic in alcoholic beverages, and efforts are now being put forth to check as far as is possible the consumption of spirituous liquors in Great Britain. As a matter of fact, the seven months of war have done more for the cause of temperance reform, than all the preaching and crusading which have been going on during the past twenty years.

It is now freely acknowledged that when stern work is to be performed, and a high degree of efficiency is required, not only is alcohol unnecessary, but its use is absolutely contraindicated. The real-

ization by those responsible for the well being of the warring countries that in order to stand a chance to win, drink must be prohibited, is a great triumph for the men who have advocated earnestly and persistently the abolition of alcohol. Thus while in most respects war is an unmitigated evil, it still has certain reflex redeeming aspects. It arouses the inhabitants of a country from the apathy engendered by long continued peace and prosperity. It tends to drive away luxurious habits and to strangle the selfishness which all are apt to acquire in easy going times.

So far as the effects of alcohol are concerned, most authorities now are agreed that in but very few instances is its use beneficial. Some, Sir Victor Horsley, for example, stigmatize alcohol as a poison and nothing else and deprecate its employment in any conceivable circumstance. Others, and these constitute the majority, take a middle course, and give as their opinion that alcohol is something like fire, "a good servant but a bad master." This is to say that there are occasions when the drug serves a useful purpose,—in malignant diphtheria, for example, as Jacobi has proved—although such occasions do not occur frequently.

It may be stated, however, with decision and emphasis, that views with regard to the value of alcohol have undergone a radical change and that members of the medical profession generally are now teaching that the use of strong drink to excess is a public menace and that great discretion must be employed in its use, in any event and in the smallest quantities. Among the lessons already learned from the war, is that if body and mind are to be keyed up successfully to meet hardships and horrors of every description, the fictitious stimulation afforded by alcohol is indeed a broken reed upon which to lean. Still, as pointed out in the *British Medical Journal* for April 10th, page 655, it is interesting to note that every one of the armies now at war is provided with a ration of alcohol. Among the French troops, this consists of fifty grams of Jamaica rum to be taken with the morning coffee.

THE STRENGTH OF ALCOHOLIC BEVERAGES.

Not a great deal seems to be known by the average consumer in the United States of the alcoholic strength of the various whiskies, brandies, gins, wines, and beers on sale in hotels, saloons, and groceries. The *Lancet* has given careful study to this matter; and in its issue for April 10, 1915, it publishes a summary of its findings. It is safe to assume that our own excellent native wines are of about the same strength as the European, but our rye and corn whiskies are probably not quite so heavily fortified as their Scotch and Irish competi-

tors. The *Lancet* begins by classifying the beverages: "Spirits—whisky, gin, brandy, and rum containing about fifty per cent. of alcohol by volume; fortified wines—port, sherry, and madeira containing about twenty-three per cent. of alcohol by volume; unfortified or the so called natural wines—some pale sherry, claret, moselle, hock, burgundy, and sauterne containing approximately twelve to thirteen per cent. of alcohol by volume. In this group may be included champagne and saumur and sparkling hock, although these may be slightly liqueured. We find, however, that they seldom contain more than fourteen per cent. of alcohol by volume. The last group comprises cider, perry, and beer. The alcoholic strength of cider is about that of light beers—viz., approximately six per cent. by volume of alcohol. There are, however, two classes of beer, the heavy or high gravity beers and the low gravity or light beers, the former containing about two per cent. by volume more of alcohol. The foregoing figures have been obtained in our own laboratory and have been often tested. It is important to remember that beers are sharply distinguished from all other alcoholic liquors inasmuch as they contain a decided amount of nourishing material in the shape of carbohydrates and proteins derived from the malt." It is important for American readers to remember also that the word *beer*, as used in England, refers to what is called in the United States *ale*. What we know as beer, i. e., lager beer, is lighter than even the low gravity ales.

News Items.

The Harlem Morgue Discontinued.—The Harlem Morgue, situated at 120th Street and East River, and conducted until recently by the Department of Public Charities, has been discontinued. Calls for a municipal funeral and other business heretofore transacted at this morgue will be taken care of at the new mortuary, Twenty-ninth Street and First Avenue.

American Urological Association.—At the annual meeting of this association, held in Baltimore on April 13th, 14th, and 15th, under the presidency of Dr. William E. Lower, of Cleveland, the following officers were elected: Dr. Edward L. Keyes, Jr., of New York, president; Dr. E. C. Smith, of Cincinnati, vice-president; Dr. C. L. Sanford, of Cleveland, secretary; Dr. James A. Gardner, of Buffalo, treasurer. Next year's meeting will be held in St. Louis, Mo.

American Association for Promoting Hygiene and Public Baths.—The fourth annual meeting of this association will be held in New York on Tuesday, May 11th, under the presidency of Dr. Simon Baruch. The morning and afternoon sessions will be held in the City Hall. At the evening session, which will be held at the New York Academy of Medicine, addresses will be delivered by Mayor Mitchel, Doctor Baruch, and others. The public is invited.

Louisiana State Medical Society.—At the thirty-sixth annual meeting of this society, held in Lake Charles, La., on April 21st and 22d, the following officers were elected: President, Dr. J. C. Willis, of Shreveport; first vice-president, Dr. T. H. Watkins, of Lake Charles; second vice-president, Dr. A. Henriques, of New Orleans; third vice-president, Dr. J. M. Moseley, of Arcadia; secretary-treasurer, Dr. L. R. DuBuys, of New Orleans. Councillors—third congressional district, Dr. J. W. Shaw, of New Iberia; sixth congressional district, Dr. J. J. Robert; eighth congressional district, Dr. E. Lee Henry, of Lecompte. Chairman of the house of delegates, Dr. A. H. Gladden, of Monroe.

The Spring Clean Up Campaign in New York.—The regular spring clean up campaign begins in Manhattan and Brooklyn on Monday, May 3d, and in the Bronx on May 4th. The work will be carried on by districts, that in Manhattan taking the six days from Monday, May 3d, to Saturday, May 8th; the work in the Bronx will take three days, from Tuesday, May 4th, until Thursday, May 6th, and that in Brooklyn will take four days, from Monday, May 3d, to Thursday, May 6th.

American Gastroenterological Association.—The eighteenth annual meeting of this association will be held in Osler Hall, Medical and Chirurgical Building, Johns Hopkins University, Baltimore, on Monday, May 10th, under the presidency of Dr. Joseph C. Bloodgood, of Baltimore. Dr. Charles D. Stockton, of Buffalo, and Dr. William G. Morgan, of Washington, are vice-presidents of the association, and Dr. Franklin W. White, 322 Marlboro Street, Boston, is secretary and treasurer.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, May 3d, Philadelphia Academy of Surgery, Philadelphia Clinical Association; Tuesday, May 4th, Wills Hospital Ophthalmic Society, Philadelphia Laryngological Society; Wednesday, May 5th, Physicians' Motor Club (directors), College of Physicians, Lebanon Hospital Clinical Society; Thursday, May 6th, Obstetrical Society; Friday, May 7th, Kensington and Southeast Branches of the County Medical Society.

American Aid for Belgian Physicians.—The following contributions were received during the week ending April 24, 1915, by the Committee of American Physicians for the Aid of the Belgian Profession: Dr. George W. Crile, Cleveland, \$100; Salt Lake County Medical Society (third contribution), Salt Lake City, \$21; Dr. C. P. Thomas, Los Angeles, \$5; Portland Medical Club, Portland, Me., \$25; Dr. C. H. Henninger, Pittsburgh, \$5; Dr. J. J. Buchanan, Pittsburgh, \$25; total, \$181. Through an error in the report of April 17th, the contribution of The Bennington County Medical Society, Bennington, Vt., was credited to the secretary, Dr. Lucretius H. Ross.

A Study of Mouth Infections.—An interesting study concerning the relation of certain microorganisms to pyorrhea, and designed to devise, if possible, preventive measures against this condition, is now being carried on at Public School 21 by bacteriologists of the Bureau of Laboratories of the Department of Health of the City of New York. A special class has been organized, consisting of children whose gums show evidences of the possible beginning of pyorrhea. This will be subdivided into several groups, one of which will serve as the control, and the others to be submitted to a definite course of treatment. The course of the condition will be followed both clinically and microbiologically, and the investigation promises to yield valuable information.

Society of Sanitary and Moral Prophylaxis.—The last meeting of the season of this society will be held in the hall of the Russell Sage Foundation Building, 130 East Twenty-second Street, New York, on Friday, May 7th, at 8:30 p. m., under the presidency of Dr. Edward L. Keyes, Jr. The program will consist of a symposium on Venereal Diseases as a Preventive Medicine Problem, the various phases of the subject to be discussed by Dr. William F. Snow, general secretary of the American Social Hygiene Association; Dr. William A. Evans, of Chicago; Dr. J. H. Landis, health officer of Cincinnati, Ohio; Dr. Powhatan Schenck, health commissioner of Norfolk, Va., and Dr. John N. Hurty, secretary of the State Board of Health of Indiana.

American Academy of Medicine.—The fortieth annual meeting of this organization will be held in San Francisco, June 25th to 28th, under the presidency of Dr. John L. Heffron, of Syracuse, N. Y. With the single exception of the social session, which will be held in the St. Francis Hotel, all the sessions will be held in the Auditorium Hall of the Panama-Pacific Exposition. The first session on Friday afternoon will be devoted to business, and in the evening the program will include the addresses by the president, Dr. Woods Hutchinson, and Dr. David Starr Jordan. Doctor Jordan's address will be on the Relation of Medicine to the Peace Movement. For information regarding hotel accommodations write the secretary, Dr. Charles McIntire, Easton, Pa.

Florida Medical Association.—The forty-second annual meeting of this association will be held in De Land, on Wednesday, Thursday, and Friday, May 12th, 13th, and 14th. The Committee on Scientific Work, under the chairmanship of Dr. Ralph Greene, of Chattahoochee, has prepared a program of great interest, and the physicians of Volusia county are busily engaged in making preparations for the entertainment of the visiting members and their friends. It is hoped that there will be a good representation of the profession from all parts of the State. The officers of the association are: Dr. F. Clifton Moor, of Tallahassee, president; Dr. Calvin D. Christ, of Orlando, first vice-president; Dr. Thomas Truelsen, of Tampa, second vice-president; Dr. J. A. Simmons, of Arcadia, third vice-president; Dr. Graham E. Henson, of Jacksonville, secretary-treasurer and editor of the official journal of the association, and Dr. James D. Pasco, of Jacksonville, librarian.

Personal.—Dr. Willy Meyer, of New York, will deliver an address in the near future before the surgical section of the Philadelphia Clinical Society, on the Present Status of Surgery of the Lung. The date of the lecture will be announced later.

It is reported that Dr. J. George Adami, professor of pathology at McGill University, Montreal, has left for England to take up work as a member of the British War Office, having charge of the preparation of a medical history of the war.

Dr. H. L. Cookingham, of Red Hook, N. Y., who was one of the surgeons sent to Paris last October by the Duchess of Talleyrand, is now convalescing from an attack of typhus fever contracted in Valerio, Serbia, where he had charge of a hospital. He will sail from Salonica for Barcelona, Spain, shortly, to visit his brother, who is vice-consul general, and expects to reach home about June 1st.

Resolution on the Death of Dr. Charles Eugene Lack.—At a recent meeting of the Alumni Association of the Norwegian Hospital, Brooklyn, the following resolution was adopted:

We, the members of the Norwegian Hospital Alumni Association wish to record our deep sorrow in the death of our beloved friend and fellow worker, Charles Eugene Lack, M.D.

Those who have been associated with him in the medical calling for many years can best appraise the fine qualities of mind and heart which marked him above men. As a physician he was gifted and industrious, conscientious and self sacrificing. As a friend he was of sterling character and lovable disposition. The loss of his activity and comradeship will continue to be felt by all the members of this society.

To his sorrowing relatives we venture to offer this expression of our deeply felt sympathy in the great bereavement that has come to them, asking them to find comfort in the circumstance that their loss is shared by an innumerable company to whom Doctor Lack was most dear as physician and friend. Therefore be it

Resolved, That this notice be entered upon a separate page of the minutes of this society, and that a suitable copy of this memorial be forwarded to the family of the deceased, and to the medical press of this city.

Reflect that life, like every blessing,
Derives its value from its use alone.

Committee on resolutions: W. CARL SCHOENIJAHN, M. D.;
ROBERT EMMET COUGHLIN, M. D.

Not a Death from Typhoid Fever in New York City Last Week.—For the first time in many years there was not a death reported from typhoid fever, the only other week in the history of the health department during which this entire absence of mortality from this cause was the week of April 10, 1909. The number of deaths from this cause in the week of April 25, 1914, was 6. This was the most noteworthy incident of week's mortality. It is also worthy of note that there was not a death reported during the past week in the Borough of Manhattan from *homicide*. The wave of epidemic influenza which reached its culmination during the week ending April 17th is gradually receding, as shown by the mortality figures for the past week, during which there were 1,748 deaths and a death rate of 15.71 per 1,000 of the population reported, compared with 1,637 deaths and a rate of 15.30 for the corresponding week of 1914, a decrease in the absolute figures of 111 deaths and in the relative figures of 63 deaths. There were 28 deaths reported from influenza compared with 13 for the corresponding week of 1914, 200 deaths from lobar pneumonia compared with 122, 228 deaths from pulmonary tuberculosis compared with 186, 348 deaths from combined heart and kidney diseases compared with 335. The mortality from measles, diphtheria and croup, and whooping cough, was considerably greater than in the corresponding week of last year.

Forty Quacks Arrested.—At the instance of the Medical Society of the County of New York, forty men have been arrested in this city charged with having conducted fraudulent medical institutes. Many of these were managed in connection with so called medical museums. It is charged that the physicians connected with the museums obtained large fees from the sale of medicines to patients. These institutes were run as part of a large system, having offices in many cities. The District Attorney of the County of New York is cooperating with the counsel of the Medical Society in the prosecutions.

Resolutions on the Death of Doctor Peck.—At the last meeting of the medical board of the City Hospital, Blackwell's Island, the following resolutions upon the death of Dr. Edward S. Peck were passed:

WHEREAS, It has pleased Almighty God to remove from the sphere of his earthly usefulness our colleague, Edward Sprague Peck, M.D., who for thirty-five years served the City Hospital as attending and consulting ophthalmic surgeon, and

WHEREAS, The Medical Board of the City Hospital desires to express its feeling of personal sorrow and professional loss; therefore, be it

Resolved, That in the death of Dr. Edward Sprague Peck the board has lost an associate of genial personality, high character, and scientific attainments.

Resolved, That the board extends to the members of his family its sincere sympathy and condolence in this hour of grief and sorrow.

Resolved, That this preamble and resolutions be entered in full upon the minutes of this meeting and that copies be sent to the local medical journals for publication and to the family of our deceased colleague.

Committee: Richard Kalish, M.D., chairman; Charles E. Quimby, M.D., Daniel S. Doherty, M.D.

Twentieth Anniversary of the Discovery of the X Ray.

—The Röntgen Ray Association of Greater New York will hold a meeting in Hosack Hall, New York Academy of Medicine, on Wednesday, May 5th, to celebrate the twentieth anniversary of the discovery of the x ray. Addresses will be delivered as follows: The Influence of Röntgen's Discovery on Physical Science, by Professor Bergen Davis, of Columbia University; Röntgen's Discovery, Its Recent Developments and Future Possibilities, by William D. Coolidge, Ph.D., of Schenectady, N. Y.; Historical Review of the Development of the X Ray Tube (illustrated by lantern slides), by H. Clyde Snook, Ph.D., of Philadelphia; The Physical Characteristics of Röntgen Radiation with Reference to the Questions Involved in Treatment, by Professor J. S. Shearer, of Cornell University; The Influence of Röntgen's Discovery on Medicine, by Ludwig Kast, M.D., of New York; The History and Development of the Art of Röntgen Ray Diagnosis, by Percy Brown, M.D., of Boston, Mass.

Dr. I. S. Hirsch, 96 Park Avenue, New York, is secretary of the association.

Annual Session of the Medical Association of Alabama.—This session was held in Birmingham, April 20 to 24, 1915. The committee of arrangements consisted of Dr. W. P. McAdory, chairman, Dr. J. S. McLester, Dr. B. S. Lester, secretary and treasurer, Dr. E. W. Rucker, Jr., and Dr. W. R. Scott. For the most part the papers read were of great scientific and medical interest.

Of exceptional interest was an address given by that master in sanitation, Surgeon General William C. Gorgas, United States Army, on the Sanitation of the Panama Canal Zone. Another noteworthy event was the Oration in Surgery, by Dr. William Seaman Bainbridge, of New York, which dealt with the sanitation of the gastrointestinal canal. Doctor Bainbridge, who has made the treatment of gastrointestinal troubles an especial study, discussed the matter in a special way. It may be said that the meeting was the largest on record and combined in a most happy manner, scientific and social concerns. From the social point of view a feature of the meeting was a banquet given by Dr. W. L. Wyman, of Birmingham, at which among others were present Surgeon General W. C. Gorgas, U. S. A.; Dr. William Seaman Bainbridge, of New York; Dr. W. W. Harper, of Selma, Ala.; Dr. J. M. Mason, of Birmingham, Ala.; Dr. B. B. Sims, president of the association, of Talladega; Dr. R. M. Cunningham, Lieutenant Governor, of Birmingham, Ala.; Dr. S. Harris, of Mobile; Dr. J. D. S. Davis, of Birmingham; Dr. John Baker, of Montgomery; Dr. John W. Elliott, Jr., of New Orleans, La., and Dr. Lewis C. Morris, of Birmingham.

HEMADENOLOGY:* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M. D., LL. D.,
Philadelphia.

(Sixth Communication.)

• THE THYMUS (Continued).

In our analysis of the functions of the thymus as exemplified by the atrophic state of this organ in infantile marasmus, in the preceding article (NEW YORK MEDICAL JOURNAL, April 17, 1915), it was held that we should consider this atrophy, not as the primary cause of the marasmic process, but as a result of the denutrition or starvation to which the infant is subjected, the thymus being known to diminish greatly in size when the body is insufficiently nourished. Hammar, for example, found that three days' fast reduced the weight of the thymus of rabbits to one half of the normal. If we now inquire into the nature of this reduction we find, not only that the lobes are diminished in size, but that *the lymphocytes* which we have seen carry nucleins to all tissues, *are greatly reduced in number* in their main habitat, the cortex. This fact has an important bearing upon our knowledge of the functions of the organ, for it indicates that we should always bear in mind *the direct dependence of the thymus, and through it of all tissue cells in the child for their nucleins, upon an adequate and appropriate food intake.* We have seen that this means the perpetuation of the very life of the cell, so far as the participation of the nucleic phosphorus in the oxidation processes is concerned.

Yet why should fatal marasmus occur in infants fed with cow's milk which contains virtually the same constituents as breast milk? We are bound to eliminate any theory which attributes marasmus to atrophy of the intestinal mucosa, or to any lesions of the alimentary canal, in fact, when we behold the *quasi* immediate recovery of marasmic infants, dying on cows' milk, when breast milk, their normal food, is restored to them. There must evidently be some fundamental difference between the bovine and maternal milk which in some way or other renders the former toxic under certain conditions. What are those conditions?

Bar (1), in portraying the conception of the French school concerning the pathogenesis of infantile marasmus, approaches closely the answer to this question when he states that cow's milk causes the disease, because it acts on the infant as a poison, owing to the fact that the infant does not produce digestive ferments enough to convert the poison into assimilable and benign substances. It is then absorbed as a poison and the infantile organism becoming increasingly sensitive to its effects, the phenomena of anaphylaxis finally develop. Already in 1900, Escherich (2) had attributed infantile marasmus to a deficiency of ferments, derived, he argued, from the ductless glands which control nutrition and

growth, and which ferments the milk glands took up from the maternal blood to utilize them as constituents of their lacteal product.

The field in which digestive ferments are generally believed to carry on their only functions, that of the alimentary canal, has been greatly expanded in recent years. It now includes the entire body. Thus, as first pointed out by Lépine in 1889, the pancreas secretes a glycolytic ferment which acts throughout the entire organism. It is now recognized, moreover, that the pancreatic internal secretion, in keeping with the action of its external and homologous secretion in the intestinal tract, the pancreatic "juice," acts upon carbohydrates in the body at large, in the sense that it governs carbohydrate metabolism. The widespread action is no longer restricted to pancreatic enzymes; it may now be said to apply to all digestive ferments. Referring to the tissues of the general organism, Abderhalden wrote recently (3): "Each separate cell, with very few exceptions, disposes of the same or similar ferments as those secreted by the digestive glands in the intestinal canal." As to the manner in which these ferments are conveyed to the tissues, Abderhalden also writes: "It is an open question from what source these ferments which we are going to call *defensive ferments*,¹ take their origin. Many facts accord with the suggestion that the leucocytes play a part in this connection. They probably give off these ferments to the circulation." He gives as examples the demonstrable ferments in the pulmonary alveoli, which ferments, he says, "take their origin from leucocytes."

I need perhaps hardly recall to American readers that as far back as 1903 (4), and before Abderhalden therefore, I had advanced similar views, based mainly upon a study of the trophocytes of sponges, the nutritional leucocytes of these organisms. After showing that precisely as in these lower forms, leucocytes played a leading part in the nutrition of the higher members of the phylogenetic scale, including man—an idea first advanced, as to the latter, by Hofmeister nearly forty years ago—I urged that it was *directly to the tissue cells* and not merely to the blood, as believed by Hofmeister, that certain leucocytes carried the products of intestinal digestion, after completing the digestive process. In keeping with this view, ferments have been found in these leucocytes that are fully capable of carrying the digestive process to a finish; thus, they have been found to contain, among others, a ferment analogous to *trypsin*, a *casein* ferment, a *glycolytic* ferment (Rosbach, Zabolotny, Tarchetti), a *lipasic* ferment (Poulain), and an *oxidase* fibrin ferment (Labbé). Important in this connection, moreover, is the fact that this intraleucocytic process of digestion serves likewise, in phagocytosis, for the de-

*Hemadenology, from the Greek, *αἷμα*, blood, *ἀδὴν*, gland, *λόγος*, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

¹The italics are my own.

struction of bacteria, Metchnikoff's cytase being regarded by him and by Bordet as a trypsin, while Charrin and Levaditi, Zaremba, and others found that trypsin was the bactericidal agent of the intestinal tract. In other words, it is evident that the leucocytic ferments carry on both nutritional and defensive functions.

Now, we shall see that milk contains the same

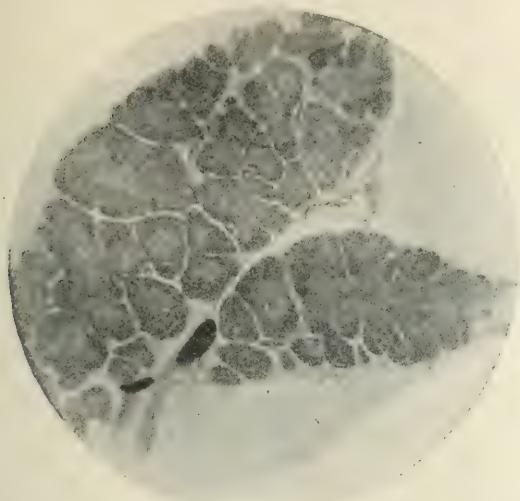


FIG. 1.—Normal thymus from a six months' fetus, showing the contrast between the cortex and medulla of the lobules. Stokes, Rührh, and Rohrer (*American Journal of the Medical Sciences*, November, 1902).

ferments as the leucocytes, and, therefore, that it is not only a nutritional fluid, but also a defensive one. Indeed, as stated by Welch in his Harvey lecture some years ago, "it is an important function of the mother to transfer to the suckling through her milk immunizing bodies, and the infant's stomach has the capacity which is afterward lost, of absorbing these substances in an active state.¹ The relative richness of the suckling's blood in protective antibodies, contrasted with that of the artificially fed infant, explains the greater freedom of the former from infectious diseases." Ehrlich (5) had shown in 1892 that breast milk was rich in antitoxin. Buchner attributed the immunizing properties of maternal milk to alexins, a term used at the time for the antibodies in the blood. On the other hand, Moro (6) found that the blood serum of breast-fed infants contained not only more alexins than artificially fed ones—the blood of artificially fed infants being able to kill only 33.4 per cent. of bacteria, while that of breast-fed infants killed seventy-seven per cent.—but that the proportion corresponded with that of the alexins in the maternal placenta. It is evident that *it is the function of the mother's milk to supply the infant's blood with antitoxin* precisely as her blood did her fetus in utero. Ample additional evidence could be adduced in support of Welch's statement that the mother transfers "to the suckling, through her milk, immunizing bodies."

As to the presence in the milk of the ferments found in leucocytes, Babcock and Russell (7), Dupong (8), Raudnitz (9), Arnold (10), Wender (11), Gillet (12), and others found milk rich in *oxidase*; Wender (13), Spolverini (14), Nobécourt

and Merklen (15), and others found *thypsin* (galactase), and the two last named observers *pepsin* likewise. Marfan and Gillet (16), Luzzatti and Biolchini, and others found *lipase*, the fat splitting ferment, which proved in fact much more energetic in human than in cow's milk. *Amylase*, the starch splitting ferment, was also found in human milk by Nobécourt and Merklen. All these ferments have been found to occur, through the labors of Babcock and Russell, Nobécourt and Merklen, and others, in the milk of many animals examined; cow, goat, mare, sow, ass, sheep, bitch, buffalo, etc., as well as in woman's milk. Of special importance, however, is the fact that, as shown by so competent an authority as Salkowski (18), milk also contains nucleic or nucleinic acid, the laboratory product of what is generally termed nuclein. In other words, *milk contains, beside the various ferments which carry on nutritional and defensive functions in the tissue cells, the nucleins required by their nuclei, and also by the thymus to build up its nuclein-laden lymphocytes.*

What are we to gather from all these facts? We have seen that we can no longer interpret the meaning of the changes found post mortem in the thymus of the eighteen cases of infantile marasmus examined by Stokes, Rührh, and Rohrer, and referred to in our preceding article, in the light of degenerative changes due to the formation of adventitious fibrous tissue, but as phases of nutrition. The annexed illustrations, therefore, should be interpreted from my viewpoint as showing in Fig. 1, the thymic lobules filled with lymphoid tissue, during *normal*

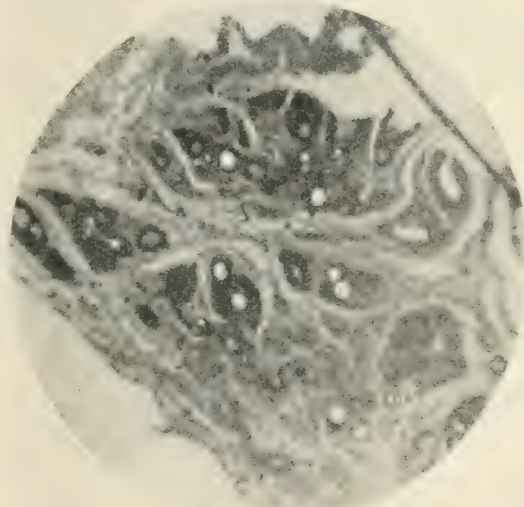


FIG. 2.—Specimen of extreme atrophy from a case of severe marasmus (primary atrophy). This shows a great decrease in the number and size of the lobules, combined with great increase in the interlobular connective tissue. Stokes, Rührh, and Rohrer (*Ibidem*, November, 1902).

nutrition of the body, and in Fig. 2, the same lobules during *denutrition or starvation*, with their interlobular framework nearly denuded of lymphoid tissue. This condition recalls the disappearance from the pancreas, under certain conditions, of the islets of Langerhans.

The foregoing facts have also suggested that in keeping with the views advanced by myself in 1903, and which Abderhalden's investigations have since

tended to sustain, the nuclein laden lymphocytes in the thymus are in reality derived from the glandular and epithelial elements of the alimentary canal, where after engulfing chemotactically their specific nucleoproteids out of the products of gastrointestinal digestion, they migrate to the thymus. Much indirect evidence tends to support this view. In fact, many investigators deny that the lymphocytes are formed in the thymus; as Laguesse states, these cells may "immigrate" into this organ, there to elaborate, we would add, their final product to the needs of the tissues.

There still remains unanswered the question concerning the inability of cow's milk to arrest the lethal trend in infantile marasmus, while breast milk almost at once turns the tide and carries the infant to recovery. The problem has, in fact, been rendered still more obscure by the evidence adduced to the effect that cow's milk is endowed with all the attributes, nutritional and defensive, possessed by woman's milk. An all important feature must not be overlooked in this connection, however, viz., the fact that *the presence of various ferments, particularly oxidase, with nucleoproteids in the milk, renders it exceedingly unstable as a chemical entity after it leaves the udder.* From the living fluid, it is within the latter, it is gradually converted, once out of it, into a dead chemical mixture in which various reactions occur and progress until the fluid, as a chemical structure, differs totally from what was once Nature's nutrient and defensive product. Thus, pepsin and trypsin brings on a decomposition of the nucleoproteids, the reaction beginning with their resolution into nucleic acids and protein components. If nuclease is formed, the phosphoric acid is liberated from the nucleic acid molecule. Or, the degradation products of nucleic acid, purin bases such as adenine, guanine, xanthin, and hypoxanthin may be formed; these in turn may be oxidized by the oxidase in milk into uric acid, etc., etc. These are but a few of many possible reactions, known and unknown, which may occur in drawn milk. The likelihood that among these may appear an intermediate or end product which, as stated by Bar in his review of the modern conception of infantile marasmus, may be absorbed as a poison, increasingly sensitize the child, and bring on anaphylaxis, is self evident.

The endogenous reactions described also increasingly diminish the activity of drawn milk as an immunizing or defensive agent. Although cow's milk is likewise rich in defensive ferments, these lose their efficiency as bactericidal and antitoxic agents, as they gradually take part in and become factors of chemical changes. In the end, the fluid portion of the milk thus becomes reduced to the condition of unrecently drawn blood serum—an excellent culture medium for bacteria. Hence the fact that in a few hours, especially during warm weather, milk is often found to contain enormous quantities of germs, benign and pathogenic—well known factors in the causation of the excessive mortality from digestive disorders in artificially fed infants.

As to the influence on the thymus of the reactions I have mentioned and the many others, known and unknown, that may occur in drawn milk, it may readily be surmised: Not only are the nucleoproteids of the milk, owing to their wealth in phos-

phorus, probably the main source of energy in the chemical changes produced, but the molecular composition of thymic nucleic acid ($C_{40}H_{56}N_{15}O_{16}$, $2P_2O_5$ Schmiedeberg) suggests a marked susceptibility on the part of the thymic nuclein or its progenitor in the milk to decomposition. In the presence of these facts, we can readily understand why artificial feeding even with cow's milk does not save life in infantile marasmus; *its nucleoproteids are no longer suitable for the formation of the nucleins or nucleoproteids which the thymus supplies to the tissues of the infant through its lymphocytes.*

How could we prevent the appalling sacrifice of hundreds of thousands of newly born and small infants which statisticians continue to record year after year irrespective of the vast labor devoted to the question in recent times?

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(To be continued.)

Pith of Current Literature.

WIENER KLINISCHE WOCHENSCHRIFT.

March 25, 1915.

New Remedy in Pediculosis, by Sigmund Fränkel.—The substance employed, methylphenyl ether, is known under the name of anisol. It was first prepared from anise acid, an oxidation product of anethol, from which it derives its name. Pediculi exposed to its action show only slight movements at the end of four minutes and at the end of ten minutes they are killed. The preparation is not a dangerous one, its strength being one twelfth that of phenol. It has no irritating action on the skin and does not produce eczema. It is easily prepared from phenol and numerous experiments have proved it a very satisfactory remedy against pediculi.

Personal Prophylaxis in Typhus, by R. Kraus.—The question whether infection can take place in any other way than through transmission by lice is still in doubt. One of the important details in personal prophylaxis is the proper ventilation of the sick room. It has been observed in cases where physicians have become infected that this item has been overlooked. Another prophylactic measure is the killing of lice which may be contained in the clothing of those coming from the sick room. In addition, it is a good plan to wear a Flüge mask, and as a further protection against lice, rubber gloves, a rubber coat, and rubber overshoes should be worn. (See editorial article, p. 903.)

Epidemiology of Typhus, by E. Lindner.—Like other infections, typhus when it attacks a community for the first time shows a higher mortality than in locations where it is present endemically.

Certain authors are of the opinion that transmission takes place only by means of lice. Others have shown that infection can take place where the patients and the rooms are louse free. The author concludes that what probably takes place is the following: The infectious material, as in other diseases, is transferred either directly or indirectly in various ways. The virus becomes attached to the clothes, etc., and is possessed of considerable tenacity. In itself it is not infectious for human beings, but it is for lice. It is taken up by the latter, and while in the louse it develops and becomes more active and virulent. Through the bite of the louse it is transmitted in a sufficiently virulent form to cause typhus in the human being.

Rheumatic Disease in War, by Ernst Freund.—True acute articular rheumatism following infectious processes is rarely seen. Neuralgias and the different forms of neuritis are seen more frequently. The most prominent symptom is the sensitiveness of the muscles and the periosteum. There are no evidences of any exudative or infiltrating processes. Limitation of motion is quite pronounced. The knee jerks and the ankle jerks are usually normal and atrophy, even in long standing cases, has not been observed. The general health of the patients does not suffer. The etiological factors are cold and dampness. The course is usually chronic. Therapeutically, little effect is obtained from the use of the salicylates or atophan, physiotherapeutic measures giving best results. The patients respond to warm baths, faradization, active and passive movements and massage. In uncomplicated cases the diagnosis is not difficult, but when these cases appear in combination with other infections, difficulty in making the correct diagnosis has been experienced.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

February 16, 1915.

Surgery of Nerves, by Sicard, Imbert, Jourdan, and Gastaud.—From extensive experience in neural surgery in a military hospital, the conclusion was reached that operative intervention is indicated in cases of nerve traumatism where, even in the absence of all impairment of motor function, sharp persistent pain is experienced. In addition to liberation of the nerve from surrounding cicatricial tissue, injection of two c. c. of normal saline solution containing 0.005 gram each of cocaine and stovaine into the involved nerve trunk for a distance of four to six cm. is recommended. In cases with motor paralysis operation is advised where, at the beginning of the fifth month after the traumatism, absolutely no return of power has occurred in the muscle group involved. Where a nerve, upon operative exposure, is found to present a normal appearance, being thus merely in a state of inhibition or stupor, injection into the nerve trunk of one to two c. c. of a one in 100 solution of chemically pure methylene blue in normal saline solution prepared with distilled water is advised. Return of motor function is thereby sometimes accelerated. Where, on the other hand, the nerve trunk is found imbedded in a mass of fibrous tissue adherent to surrounding structures, the decision whether to excise the involved portion of nerve trunk or merely to free it from the enclosing fibrous mass should be

based upon immediate histological examination with one in twenty osmic acid of a bit of nerve taken just above the involved section of nerve—the finding of any normal nerve fibres contraindicating excision—as well as upon electric exploration of the exposed nerve trunk above and below the fibrous mass.

Results from Operative Intervention in One Hundred Cases of Nerve Traumatism, by Henri Claude.—The percentage of cases of improvement or complete recovery in the author's series of nerve lesions of varying severity, surgically treated, was about seventy. Surgical treatment is advised where the functional condition has remained the same for several months; where pain, and especially sharp twinges upon pressure on the nerve, exist; where impairment of objective sensation is persistent; where vasomotor and trophic disturbances are marked, and where the results of electrical testing of the nerve function are unfavorable. In cases of more than four months' standing, absence of response to electrical stimulation of the nerves and muscles, in conjunction with motor paralysis and a zone of absolute anesthesia, indicate that the nerve has undergone complete organic interruption. Conservation of sensation, on the contrary, positively excludes complete interruption. In the majority of instances, it is of advantage, where fairly clear indications exist, to operate within two months after the traumatism.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

March 21, 1915.

Postoperative Insanity, by V. Aza and J. Macan.—This condition usually follows operations of slight difficulty and duration especially those of a plastic nature. Only rarely are hysterectomy and ovariectomy complicated by insanity. Bronn, Rohe, and others who have given much study agree that the confusional type is the common one. The temperature and pulse are frequently normal and infection seems to play little or no part in the process.

Cyanide of Gold and Potassium in Joint Tuberculosis, by D. Goyanes.—Arterial injections are practised with a dose of 0.03 gram after ligation of the artery and the production of ischemia of the region. There is intense local reaction with ecchymotic spots and evidence of slight systemic intoxication. Usually one injection suffices for the arrest of suppuration. Blood examination shows slight increase in the red cells with a decrease of polynuclears.

Elephantiasis in a Boy Aged Eleven Years, by S. De Los Terrores.—At the age of eight years this patient had a phimosis with preputial excrescences accompanied by anasarca. Circumcision relieved him completely and he was quite well for three years when he developed lymphatic varices in the inguinal regions and genitalia. In a few months he developed a typical elephantiasis of the entire left lower extremity, external genitals and a semilunar zone in the lower abdomen, with slight involvement of the right foot. No filariae were found in the blood. It was possible to exclude the other common causes of the condition as syphilis, leprosy, paludism, bacterial infection with streptococcus and lymphococcus. Medical treatment is unsatisfactory. The

surgical measures ordinarily used are deep scarification, compression or ligature of the main artery of the limb, removal of inguinal glands, partial excision of the affected skin and finally amputation. The case reported did well under electrical vibration treatment with the internal administration of protiodide up to the toleration point, later followed by two c. c. of thiosinamine injected every second day.

BRITISH MEDICAL JOURNAL

April 10, 1915.

Wound Infections, by A. E. Wright.—Knowledge of the physiological processes which go on in wounds is essential to intelligent treatment. Through a series of graduated inoculations of pus into pure undiluted serum he finds that certain organisms present in the pus fail to multiply while others grow abundantly. The first group will grow if a relatively large proportion of pus has been inoculated, introducing therewith a considerable number of leucocytes and the products of their decomposition. Pyogenic organisms can be classified as the serophytes, or those which grow after small inoculations, and the serosaprophytes, or those which grow only after heavy inoculation, including the introduction of other materials. The classification holds good for aerobic and anaerobic organisms. By means of an artificial leech he finds that only the serophytes will grow in the lymph which it withdraws from a badly infected purulent wound. This inhibiting action of normal serum and lymph on bacterial growth is ascribed to the presence in these fluids of an antitryptic ferment, and it is only after this has been destroyed or reduced by the presence of pus cells and their decomposition products that the serosaprophytes will begin to multiply. This also serves to explain the fact that these latter organisms are seldom found as invaders of the blood stream in septicemia. A corollary is the fact that the injection of a vaccine, even of another type of organism from that chiefly present in a wound, often is followed by decided improvement. This non-specific action of a bacterial vaccine is conceived to be due to its power of increasing the antitryptic power of the blood serum.

Prophylactic Inoculation against Tuberculosis, by W. M. Crofton.—Old tuberculin has apparently given some results, but it is not an efficient antigen. Finding that tubercle bacilli would dissolve in benzoyl chloride, Crofton has been using an antigen prepared by solution of fresh cultures of these organisms for the past few years. The initial dose for treatment is about one ten millionth of a mg. in pulmonary cases and one millionth in nonpulmonary cases. This is gradually increased until a dose of one one hundredth of a mg. is reached. For prophylactic purposes the initial dose for infants is one millionth of a mg. and for older children ten times as much. Again the dose is to be increased until one one thousandth or one one hundredth of a mg. is reached. So far the number of cases in which this method has been used is too small for statistical analysis, but there seems to be reason to believe that the procedure increases the resistance of the inoculated children to a material degree. The preparation can be readily made by anyone.

LANCET.

April 10, 1915.

Some Cases of Blood Infection by an Anaerobic Organism, by Adrian Stokes.—Several cases were encountered in wounded men which gave the same clinical and bacteriological pictures. All of the patients showed a dirty yellow color of the skin; the pulse was soft and running and often too fast to be counted: all had uncontrollable vomiting; and in all the condition set in shortly after being wounded and progressed rapidly to death in an average time of two days. There was no constant association of the condition with gas phlegmon about the wound. Blood cultures from six of the cases, some taken during life and others from the heart blood shortly after death, all revealed the presence of an anaerobic organism which was not distinguishable from *Bacillus aerogenes capsulatus*.

Cerebrospinal Meningitis: Meningococci Found in Peripheral Blood Films, by Alfred C. Coles.—A fatal case of cerebrospinal meningitis is described in which blood taken from the ear showed the presence of numbers of typical meningococci in stained films. For the most part the organisms were found within the polynuclear leucocytes. None of the organisms could be found in smears made from the spinal fluid, which was nearly clear and free from marked deposit of pus. This finding suggests to the author that the disease may in some cases be transmitted by means of some blood sucking insect, particularly as the meningococcus is known to be a short lived organism which is quite susceptible to drying.

Injection of Oxygen as a Treatment for Tetanus, by H. O. Howitt and D. H. Jones.—Experiments were conducted on guineapigs, in which the tetanus bacillus was directly inoculated subcutaneously. At once after the inoculation oxygen was injected through a needle into the inoculated area and most of the pigs so treated recovered from the tetanus injection without the manifestations of any symptoms. Controls all developed the disease and died. The method is easy and free from danger and is suggested as a possible means in the treatment of human cases of tetanus.

BRITISH JOURNAL OF CHILDREN'S DISEASES.

April, 1915.

Oculocardiac Reflex, by E. B. Gunson.—The reflex consists in the change of the pulse rate, in some cases also in the rhythm, following ocular compression. The reflex path is along the fifth cranial nerve, the medulla and the vagus or the sympathetic nerve. A marked slowing of the pulse is most frequently observed—here the reflex is through the vagus—and patients belonging to this class are known as vagotonics. When the slowing of the pulse is only slight, or where there is an increase in the rate, the reflex is through the sympathetic and these patients are known as sympathicotonic. Normally the slowing averages from five to twelve beats a minute and is greater when the pressure is made on the right eye. In children convalescing from diphtheria and scarlet fever the reflex was positive (slowing of the pulse) in ninety-two per cent. of the cases. In some cases the heart stopped beating for as long a period as four seconds and in others there

was a complete dissociation of auricles and ventricles. In cases of cardiac paralysis the reflex was negative. The reflex is of no value in differentiating cardiac failure due to myocardial lesions from that due to nervous lesions.

Cerebellar Abscess Not Due to Ear Trouble, by Hugh T. Ashby.—The patient, a girl aged four years, complained of headaches for five weeks. On admission she appeared listless and it was noticed that she always rested on the right side. There was a slight bronchitis present and the pulse was slow and irregular. Kernig's sign was absent, but the *tache cérébrale* was well marked. Examination of the cerebrospinal fluid showed it to be clear with a slight excess of lymphocytes and polymorphonuclear cells. After a few days vomiting commenced, and during the last four weeks of her life she vomited two to three times daily. Constipation became marked. The pupils reacted slightly to light and were equal, but the eyes showed a gradually increasing optic neuritis. The temperature remained normal throughout the illness. Five weeks after admission, after a convulsion which affected the right side for the greater part she died. The diagnosis of tuberculous meningitis had been made. Autopsy showed a large abscess in the substance of the cerebellum, the pus containing pneumococci. No evidence of ear trouble was found. It is possible that the starting point may have been the bronchitis which was present on admission.

Liver Abscess in an Infant, by C. Violet Turner.—The patient, a boy five weeks old, presented swelling of the abdomen and legs. Four days after birth jaundice set in and persisted for ten days. The cord separated on the fourteenth day and the scar healed in a week. Six days before admission, however, a spot had been noticed on the abdominal binder. Examination in the hospital showed the abdomen to be markedly distended, with dilatation of the superficial veins. There was edema of both legs and the scrotum; also of the lower abdomen and back. The right lobe of the liver was markedly enlarged, the edge being felt at the umbilicus. The following night a temperature of 101° F. was recorded. The next morning the abdominal distention and edema had become worse and the skin began to blister in various places. The child died the same afternoon. The autopsy showed an abscess of the right lobe of the liver containing two ounces of thick creamy pus. Cultures showed the presence of the colon bacillus and the streptococcus. The infection probably took place through the umbilicus, the facts that it did not separate for two weeks and that there was a spot on the abdominal binder six days before admission being rather significant.

BOSTON MEDICAL AND SURGICAL JOURNAL.

April 15, 1915.

New Preparation for Pyelography, by Edward L. Young.—Collargol has been found to be an absorbable kidney poison when used in the renal pelvis, so the writer interested a pharmacist, Joseph Godsoe, in an attempt to find a clean, nonabsorbable, opaque fluid which could be used with the minimum of danger to the patient and the maximum satisfaction to the surgeon. The following preparation worked well experimentally, and has been used in the genitourinary service of the Massachusetts

General Hospital for three months with better results than those obtained from collargol. Macerate 100 grains of uncrushed quince seed in eight ounces of water for twenty-four hours with frequent agitation. Strain through cloth. Add two per cent. of boric acid up to twenty ounces. Enough of this mucilage is added to twelve and a half c. c. of argentide, a saturated solution of silver iodide, to make fifty c. c., and vigorously shaken for two minutes. The resulting emulsion lasts several weeks, and is a thin, clear fluid that flows readily through a ureteral catheter. The value of the substance depends on the method of preparation and the character of the resulting emulsion.

Contagious Diseases and Their Relation to the Handling of Food, by Edward O. Otis, Allan J. McLaughlin, Harry Linenthal, Cleaveland Floyd, Abner Post, T. K. Cory, and Henry Abrahams. The first three papers are devoted to the general subject.—Floyd deals particularly with tuberculosis, Post with syphilis, while the last two papers have to do with the employment of labor. It is pointed out that after the supply of milk and of water has been cared for thoroughly, fingers, food, and flies are to be taken into account in the transmission of typhoid, especially the first two, each of which is a much greater influence than flies. The intimate and extensive relations which exist in present society are such that if a farmer on some distant farm fails to wash his hands in the morning, an outbreak of disease may occur hundreds of miles away. It is fair to assume that many sporadic cases of contagious disease are due to transmission of infection by food or food utensils that have been handled by a person suffering from that disease.—Linenthal speaks of the dangers attending hand dipping of expensive chocolate candy, while the cheaper grades are dipped by machinery in a very cleanly way. He also calls attention to the little curled papers that ornament certain meats in some restaurants, as he has seen where they are sometimes made. Floyd states that during the past seven years he has found that about two per cent. of the six thousand cases of tuberculosis examined were in cooks, waiters, and bakers, showing that a large number of these patients were actively supplying the public with food, many for months or years, while suffering from the most active form of this disease.—Post says that the only syphilitic patients who are dangerous in this respect are those who have lesions in their mouths, either primary sores or secondary ulcers, and describes the dangers attending the use of common drinking glasses, the use of other persons' pipes, etc. But the virus cannot be packed with food products, and it is hardly possible for it to be contained in any cooking material prepared at home and served hours afterward.—Mr. Cory tells what some stores are doing to care for their employees and prevent disease, and Mr. Abrahams presents the workingman's difficulties.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

April 17, 1915.

Chemotherapy and Tumors, by Richard Weil.—In following therapeutic experiments on animals, clinicians have employed a variety of preparations, which may be grouped under four classes: 1, The crystalline salts of selenium; 2, selenium in colloid

solution; 3, other metals in colloid solution; 4, compounds of metals with organic radicals. Now, the demonstrable reduction in size of a tumor, of a kind not to be attributed to the natural processes of evolution of that tumor or of its associated lesions, is the one essential feature of effective therapeutic intervention. When these various methods of treatment are judged by this standard, it is apparent that none of them can lay claim to therapeutic effectiveness. The modifications of the disease attributed to them are modifications which occur spontaneously in a very large proportion of cases as a result of the natural evolution of the disease process, and this is a fact which cannot be too strongly emphasized. Owing, unfortunately, to the hopeless character of cancer, men are not prone to study with care all the lesser changes which the disease and the patient present under ordinary conditions; but when a "cure" is under investigation the patient and his physician note every apparent improvement with painstaking attention and enthusiasm, and, as a result, some evidence of improvement in treatment is entered on the books.

Significance of *Bacillus coli* in Pasteurized Milk, by L. P. Shippen.—The presence of *Bacillus coli*, or of any other nonsporing gas producer, in pasteurized milk is usually taken to indicate either improper pasteurization or subsequent contamination of the milk; but this is a mistake. As observed by De Graef and De Jong, certain strains of *Bacillus coli* are not killed by a temperature exceeding that commonly used in pasteurization. The thermal death point of this and similar organisms is not a constant quantity, but varies for different strains of the same bacterium. In the case of *B. coli* communis this variation was found to be as great as thirteen degrees.

The Small Heart in Tuberculosis, by F. M. Pottinger.—The small heart which is undoubtedly often found in tuberculosis has long been regarded as being a predisposing factor in this disease. But that not all persons with small hearts develop tuberculosis is evident; hence, if we are to maintain this theory, it becomes necessary to explain why the small heart is predisposing in one individual, and not in another. A rational explanation of the small heart in tuberculosis would seem to be that in this disease it is a result of compensatory circulatory changes; this is probably correct for the same small heart is found in enteroptosis. There can be no doubt that the heart is an organ which adapts itself to various conditions; we are justified in believing that any constant factor, or one extending over a long period, which decreases the amount of blood delivered to the heart, and consequently the total amount of blood contained within its cavities at any one time, would be met by a compensatory contraction of the organ as a whole. This is the condition in tuberculosis and enteroptosis, and it may also account for the reduction in size of the arteries which has been noted in the same affections. The factors which interfere with the full expansion of the thoracic cavity come early in tuberculosis. These may be either the changes in the pulmonary tissue itself, the pleural adhesions often present, or the reflex motor disturbance of the muscles of inspiration, particularly the diaphragm.

Later, these factors become exaggerated, and others enter.

The Physician's Responsibility in Acute Osteomyelitis, by J. P. Warbasse.—This affection is in a class by itself; it is wholly surgical. The physician has but one function regarding it, and that is to recognize the disease and without a moment's delay place the case in the hands of the surgeon. Without surgery it is a serious disease even in its mildest form; with surgery it is hopeful even in its worst form. There is one treatment, and that is operative. Two symptoms suffice for diagnosis: Pain of rapid onset, usually in the end of the long bone, and fever, which is often high. Local tenderness follows the pain. The blood picture and the prostration of serious infection are present. Redness and swelling appear only after the time for advantageous treatment is long passed. The x ray is of no value in early diagnosis. In the great majority of instances of acute osteomyelitis the physician has made a diagnosis either of rheumatism or sprain, and proceeded accordingly. Many of the cases have later been diagnosed as simple abscess, septicemia, pyemia, septic thrombosis, neuralgia, typhoid fever, meningitis, or scurvy. In all the available histories of this common, easily recognizable, and curable disease, it is extremely rare to find a case in which the physician has promptly made a correct diagnosis and done the one best thing possible for the patient.

MEDICAL RECORD.

April 17, 1915.

Physical Basis for Moral and Mental Deficiencies, by H. M. Friedman.—It having long been understood that the extreme mental backwardness of the idiot and imbecile is not merely an abstract, obscure mental condition, but is most likely directly due to extensive changes in the brain tissue, it is urged that idiopathic mental or moral deficiencies are idiopathic only because science is as yet ignorant of the nature of the tangible causes; that many of these causes are physical or sensory, and can be discovered on careful investigation; and that this search must be instituted early in life, because the mental development in normal children is so incredibly rapid that a lagging behind even for an inconsiderable period makes it difficult for the defective subject to catch up even after the cause of the lagging has been removed.

Gonorrhea Treated with Succinimide of Mercury Administered Intramuscularly, by G. B. Lake.—Among soldiers this treatment resulted in reducing the average stay in hospital, in thirty-two cases, to 11.75 days (a saving of three days). A number of these patients, however, showed gonococci for a long time after leaving the hospital.

Decanted Blood Serum after Severe Hemorrhage and in Hemophilia, by Aspinwall Judd.—In the first case the patient was an infant of fourteen months who had lost much blood in consequence of a fracture of the skull; in the second case, a young man aged nineteen years was operated on for tuberculous disease of the head of the femur, on whom a previous operation was interrupted on account of the immense loss of blood which occurred; he gave a clear history of hemophilia. In both instances the

procedure was attended with complete success. The cases emphasize the benefit which may sometimes be derived from the simple injection of decanted blood serum where other more scientific but more elaborate and difficult measures are not available. No technic is required which is not practicable for the general practitioner. It is to be borne in mind that the proportion of blood to serum is, roughly, two to five; that is, in 100 c. c. of blood we will get about forty c. c. of serum. The blood is drawn from the cephalic or other prominent vein of the donor into a clean, sterilized glass vessel, and preferably kept in an incubator for half an hour; though this is not absolutely necessary provided that a temperature of blood heat is maintained. It is next placed upon ice, or kept in a thoroughly cool place, until the clot separates; from one to twelve hours being required. The serum is then decanted and kept cool until needed. For making the injection an ordinary glass or metal aspirating syringe answers well. In the first case the serum was injected several times into the abdominal wall, and in the second, in two sittings into the abdomen and back.

AMERICAN JOURNAL OF TROPICAL DISEASES AND
PREVENTIVE MEDICINE.

March, 1915.

Gastroduodenal Ulcers, Gallstones, and Pancreatitis in Tropical Pathology, by H. C. Clark.—Report of an analysis of 2,100 autopsies at Ancon, Canal Zone, is made. An unexpectedly large number of cases of gastroduodenal ulcer (95 cases), gallstones (72 cases), and pancreatitis (11 cases) was found, in spite of the fact that the autopsies concerned chiefly adult negroes. Chronic peptic ulcers occurred with the same frequency as gallstones. The belief is expressed that gallstones and gastroduodenal ulcers may at times be predisposing factors, the one to the other. The commonest intercurrent accident found in the ulcer series was perforation, usually in the duodenum; acute severe hemorrhage—usually in the stomach—was infrequent. Spontaneous cures were often apparent in the duodenal ulcers and sometimes in the gastric ulcers. The conclusion was reached that in many cases gallstones and ulcers remain latent.

Treatment of Amebic Dysentery, by P. I. Nixon.—Reference is made to the use of preparations of Chaparro amargosa, a small, thorny bush indigenous to Southwest Texas and Northern Mexico, in the treatment of amebic dysentery. In employing the drug the patients were kept in bed whenever practicable, the diet restricted to liquid or semi-liquid articles, and an ounce of magnesium sulphate given three or four hours before the beginning of treatment and repeated every three or four days. An infusion of the drug made by boiling the entire plant in water for thirty to sixty minutes was used in most instances, six or eight ounces of it being administered by mouth orie half hour before each meal. Rectal enemata of 500 to 2000 c. c. of the infusion were also given twice daily with the patient in the knee chest posture. The treatment was, when practicable, continued for a week or two after subsidence of the symptoms. In a series of twelve cases of undoubted amebic dysentery of three weeks to four years' standing, treatment with the chaparro infusion or a detannated fluidextract already on the

market caused immediate cessation of symptoms in all instances. Less than two days elapsed, on the average, before the stools became normal, and in only one case was a living ameba found in the stools after the beginning of treatment. No recurrence, except in one case insufficiently treated, had been observed at the time of writing after observation periods ranging from ten weeks to over two years.

ARCHIVES OF THE RÖNTGEN RAY.

March, 1915.

Röntgen Rays in Dental Diagnosis, by J. Jall-Edwards. The apparatus necessary for dental radiography in the dentist's office consists of a coil, an interrupter, a tube holder, and tubes. If no electric supply is available, a set of accumulators will be required. A coil capable of giving a spark six to eight inches in length is the best. A rotary type of interrupter in which a gas dielectric is used is the most suitable for dental work. The tube holder must be rigid, fixed firmly in any desired position, must be portable, and should have a device to prevent the rays being scattered about the room. The tubes should be of medium size and of sharp focus. A portable apparatus in which the coil, interrupter, and tube holder are combined has been designed. An objection to portable sets lies in the fact that the range of movement of the tube holder is limited. Both films and plates are used in dental radiography and they are coated with a special emulsion containing some fluorescent substance which renders them very sensitive to the action of the rays. The films are placed inside the mouth and are held against the gums by the fingers or by the aid of some special contrivance. There is no danger to the patient in the production of a dental radiograph. The operator should be protected by a lead lined screen and when he holds the films in the patient's mouth he should wear a ray proof glove. A fairly thick aluminum filter should be used between the tube and the exposed surface. In dental radiography it is difficult to obtain an image free from distortion. Some of the dental conditions in which the x rays have been used are: Impacted teeth; retained temporary teeth; abscesses; supernumerary teeth; fistulous tracts; foreign bodies in the gums, fractures of teeth, and retained roots.

Inoperable Malignant Growths Treated by Diathermia, by E. P. Cumberbatch.—The author reports sixty-one cases of malignant growths treated by diathermia. They were all surgically impossible, some of them so extensive that the whole of the growth could not be destroyed without damage to the outlying important structures. In some of the cases of malignant growth of the pharynx and mouth treated by diathermia, the patients did not suffer from shock and were able to get up after forty-eight hours and to swallow without any discomfort at the end of this time. They usually remained in the hospital for about six days. They were greatly improved in their general health and the disagreeable symptoms, such as constant discharge, expectoration, and difficult swallowing, were relieved. Cases in this region that were not favorably influenced were those in which the growth had penetrated into the neck or had invaded the bone. Three patients with malignant growths obstructing

the esophagus were relieved of their difficulty in swallowing under this treatment and a similar number of cases of malignant growth of the tongue also showed great improvement in a very short period of time. In carcinomata of the female genitalia it has been used with considerable success, and as preliminary treatment to the Wertheim operation for operable carcinoma of the cervix, it is preferable to the application of zinc chloride or formalin. Other regions included in the series in which it exerted a favorable influence are the lip, cheek, breast, bladder, and skin.

AMERICAN JOURNAL OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

April, 1915.

Treatment of Placenta prævia, by Winn.—Slow delivery is imperative during labor when the matter of the saving of the mother is the issue at stake. By slow extraction the hemorrhage is kept under control and the danger of extensive lacerations is avoided. The delivery should not be completed until the cervix has been fully dilated. The author strongly condemns the use of cervical and vaginal tampons largely on account of the danger of infection. Cæsarean section, he believes, has a place, but a very restricted one, in cases of placenta prævia. It should be employed only in hospitals and then under certain definite limitations.

OPHTHALMIC RECORD.

April, 1915.

Intranasal Drainage of the Lacrymal Sac, by J. A. Pratt.—In chronic purulent dacryocystitis the sac was opened in the usual manner and an aperture made from the bottom directly into the nasal cavity. At first Pratt used a trocar; he now uses a dental engine and burr. Good drainage is thus obtained at once.

Aqueoplasty; or the Zorab Operation for Glaucoma, by Casey A. Wood.—About four years ago Mr. Arthur Zorab, of Southampton, England, conceived a plan to insure effective and continued drainage of the anterior chamber by inserting a loop of silk into it, bringing the cut ends through a scleral or sclerocorneal opening and imbedding them beneath the conjunctiva. According to Wood's description the first step of the operation is to dissect up the conjunctiva, preferably above, making a flap somewhat like that made by Lagrange, or Elliot. A keratome is thus passed into the anterior chamber and slowly withdrawn. A loop of wet, sterile, No. 1, braided white silk thread about half an inch long is introduced by a special pair of forceps into the chamber through this opening and left extending half way over the iris of the medium sized pupil. The margins of the conjunctival wound are then stitched together. Wood is not yet ready to advise concerning this operation when the eyesight is at stake; he has performed it only on practically blind eyes, in which it seems to have produced satisfactory filtration.

Retained Silk Thread, or Seton Drainage from the Vitreous Chamber to Tenon's Lymph Channel for the Relief of Glaucoma, by Derrick T. Vail.—In 1907 Vail introduced an aseptic silk thread through the sclera in the equatorial region of the eye. He removed the thread three months later,

and the patient had no recurrence of glaucoma up to the time of his death two years afterward. He never repeated the operation because such a thing as having a permanent stitch in the eyeball was unheard of at that time, but now that the measure is recognized as safe, he draws attention to the advantage of drainage of the vitreous instead of the anterior chamber, as in Zorab's operation.

SOUTHERN MEDICAL JOURNAL.

April, 1915.

The Heart in the Common Types of Liver Diseases, by A. G. Brown.—As regards the heart, it was formerly the recognition of anatomical changes in the valves, disclosed by murmurs, which interested the practitioner, while latterly it is the recognition of the physiological incompetency of the organ, and its correction so far as possible, which offers the best opportunity of removing danger. Acute hepatitis, from any cause, is frequently the cause of sudden death in cases of crippled heart with weak myocardium; but if the liver is itself more or less normal, and the heart damaged by an organic lesion with myocardial deficiency, this organ may well serve the heart in the hour of its impending failure. In chronic venous engorgement of the liver, or cardiac liver, the association of the two organs affords the most direct and immediate effect; the mechanical and anatomical relation being apparent. Hepatic cirrhosis is a degeneration of the elemental parts of the liver due to long continued intoxication of its tissues of one sort or another. In all types of the affection the heart has a complicated, difficult, and vicious train of conditions to negotiate, and it may be said that in cases in which the vascular renal state remains fair until late in the pathological process, the heart, as a rule, exhibits surprising endurance and integrity of action. In brief, in cirrhosis of the liver the heart muscle weakens and dilates, and the change is due to toxic and mechanical conditions, the toxic predominating. As to gallbladder disease, an infected gallbladder may produce a focus of infection which involves the endocardium secondarily and gives rise to a long train of symptoms connected with the heart.

Fractures: How Best to Get Union, by S. Harnsberger.—Prevent infection, whether from without or within. Do not be in a hurry to operate, except to clean the wound in compound cases; any time within two weeks will do to correct deformity. Keep up the fixation by cast, weight and pulley, or splints, if possible; use wire only when absolutely necessary, and plates almost never. There has often been too great an effort hurriedly to put the fragments in too rigid alignment, with a disposition to keep the parts too rigidly immobilized. This may do in some robust patients, but in the very young and in frail and elderly persons we should examine fractures frequently, and never apply casts or splints tighter than to conform exactly and easily to the contour of the part. A too tight appliance is likely to cause traumatism or inertia (which is worse); it assuredly modifies nerve action and interferes with the circulation, thus hindering healing by inhibiting or limiting the production of lymph and callus; and it probably will be the cause of vicious adhesions, with or without infection.

Proceedings of Societies.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENITOURINARY SURGERY.

Scientific Session, Held January 20, 1915.

DR. LEO BUEGER in the Chair.

1. Metastatic Abscess of the Kidney with Perinephritic Abscess; 2, Acute Hematogenous Infection of Kidney; 3, Post partum Acute Hematogenous Infection of Kidney.—Dr. HENRY DAWSON FURNISS reported three cases: 1. When the patient came under observation she gave a history of having had a few furuncles on the back of her neck, and a short while after these were well, there was some enlargement noticed on the left side of the abdomen. A Widal test had been made, and as it was faintly positive, it was thought that she might be suffering from typhoid. At the time of the examination there was a high temperature, and a large mass on that side. The urine from the right side contained a small amount of pus, as did that on the left. Indigo-carmin given intravenously was delayed only slightly on the left side, compared with the right. A diagnosis was made of abscess of the left kidney, with perinephritic abscess; and on exploration a pint of pus was evacuated. The incision to the abscess went through very dense tissue, almost like cartilage. It was hoped that the operation would relieve the patient, but as she still continued to have fever, she was again operated upon three weeks later and the left kidney was removed. (The specimen was presented, showing the posterior surface, the evidences of the perinephritic abscess, and at the lower pole a lesion looking like a carbuncle of the kidney. At the time of operation when this was squeezed the pus exuded from several small openings.) Friedman, in an article on perinephritic abscess, had stated that the posterior side of the kidney was the one involved most frequently.

2. This was a specimen of an acute hematogenous kidney. The patient was a woman who had this condition following an acute attack of gripe. On examination there was slight tenderness in the region of the right kidney, but very little pus in the urine. She had a temperature of 102-3° F., with the marked delirium which goes with this infection of the kidney. No functional tests were made. At operation, the kidney was cut down upon and de-capsulated, and two days later, was removed. The specimen showed numerous spots of infection throughout the kidney. The culture in this case showed colon bacillus and streptococcus.

3. The patient from whom the specimen was removed, first came under observation in August, when a diagnosis of stomach ulcer was made. There was difficulty in keeping up her nutrition, on account of the trouble she experienced in eating. She was delivered on December 5th, and had a second degree laceration. She had some discharge, and was catheterized for four days, after which there developed a cystitis. On the 13th, the temperature went up to 102-2° F., and on the 14th she became markedly delirious. There was bullous edema of

the trigonum; the rest of the bladder was practically normal. A catheter was inserted into each ureter, and a small amount of pus was found on the right side; only an occasional cell on the left. There was some blood from both sides. The albumin from the right side was three times as much as that from the left. There was some muscular resistance on the right side of the abdomen, but there was some doubt about feeling the right kidney. After the high temperature set in, from the 14th on, the patient became very delirious. At one time it was thought that she would weather the infection, but on the afternoon of the 19th—fourteen days after the labor—she became comatose, and as an emergency measure a right nephrectomy was performed. The pelvis was seen to be markedly dilated, three times the normal size. It was a problem whether the pyelitis, the ureteritis, and the cystitis might not have been secondary to the kidney condition, whether she had an ascending infection, or a combination of the two; whether the other kidney was infected, and whether a bilateral drainage would not have been better than the procedure adopted. The kidney was cut open after the operation. There was a good deal of bullous edema around the lower portion of the pelvis, which suggested the possibility of an ascending infection. It was most intense where the kidney emptied into the ureter. The pelvis was dilated. Through the cortex was scattered numerous foci of infection.

Doctor LILIENTHAL said that hematogenous renal infection was a subject which had interested him for many years. He had done some lucky pioneer work along this line in 1896, which was published in the *Annals of Surgery*. The first case which he had noted was that of a man with multiple miliary abscesses of both kidneys, following an osteomyelitis of the upper jaw, with necrosis and erysipelas. Although the urine contained no albumin, and showed no signs of actual nephritis, the man had pain in both lumbar regions, and it seemed advisable to explore, for he seemed to be about to die. When the miliary abscesses were found, they were drained and the rest of the kidney was not disturbed. After the operation he began to improve and there was still nothing abnormal noted in the urine. Because of a relapse, Doctor Gerster advised that the other kidney be opened. This was done, and a similar condition was found. After this the patient made a complete recovery. He never showed anything in his urine, but had fever, chills, and renal pain on both sides. After this case Doctor Lilienthal began to look out for this condition, and had the fortune to meet several in his practice. In one of these cases the patient was a physician who had furuncles of the neck followed by a lymphangitis which looked almost like an erysipelas. An incision was made. Some weeks later, a perinephritic abscess developed, which was opened, and recovery followed. One of the patients was a young man whose case had been previously reported. He was a student at West Point Military Academy, who had had a crop of furuncles, and about six or eight weeks later, when the furuncles were pretty well forgotten, he came down with a vague fever and abdominal pain in the left epigastrium. The case looked so much like a gastrointestinal one that Doctor Manges was sent

for. He made a diagnosis of possible gastroduodenitis. At that time the urine was perfectly clear. Suddenly a gush of blood and mucus appeared in the urine, and the diagnosis began to clear. The boy was brought to Mount Sinai Hospital, where his left kidney was operated upon and found to be pretty well destroyed. The patient's condition was so bad that nothing else was done at that time, but a week later the kidney was removed and he made a perfect recovery. He returned to West Point and graduated with his class, and was taken into the army in spite of the fact that he had but one kidney, and a missing rib. This was the third case with furuncles at a distant period from the appearance of the kidney condition. Since then, Doctor Lilienthal had met with a number of them, and now whenever he met a case in which perinephritis was suspected, he questioned the patient closely as to any history of furuncles, decayed teeth, or any septic process, even though it might have been months before appearance of the condition for which relief was sought. When the abscess became big enough to burst into the pelvis of the kidney, anyone could tell what the matter was, but in a number of them perforation occurred into the perinephritic tissues.

Some time ago, Doctor Lilienthal had seen a woman in consultation with another surgeon who had operated for appendicitis. There was suppuration of the superficial parts of the wound. Later, there was progressive sepsis with high fever and rapid pulse. Doctor Furniss had seen this case also, and had been able to demonstrate pus from both kidneys. She complained of more pain on the right side than on the left. He first advised aspiration, but as nothing was discovered in this way he then advised incision and decapsulation, even though the kidney should seem to be normal. This was done and a small piece of kidney was excised and sent to the pathologist, who reported a general pus infection of the kidney to such a degree that he did not see how the patient could live; yet she made a beautiful recovery. In these vague cases, even though the urine seemed to be normal, where there was a history of antecedent suppuration, and liver infection could be ruled out, and there was pain in the costovertebral angle, an exploratory operation of the kidney was indicated, with decapsulation of the kidney, even though it looked normal. The removal of a piece for examination would make the diagnosis sure.

Dr. MARTIN W. WARE, in the past few years, had seen four of these cases and had lost one of them. In the fatal last one there was merely a slight local tenderness, and a previous history of furuncles. The furuncles were opened, and the patient was on the road to recovery and was about to be discharged, when he had a fever and a chill and pain in the costovertebral angle. Immediately a diagnosis of perinephritic abscess was made, and his family informed of the situation. They could not understand how Doctor Ware could be so bold as to make such a diagnosis, and he informed them that it was a manifestation of sepsis. They asked him to wait until he had a little more definite indication, so he waited another day, and the patient had another chill; so it was not advisable to delay any further, and under narcosis an exploratory puncture was made with a large aspirating needle, which

he usually deprecated, but no pus was found, although numerous places were punctured. At the suggestion of the house surgeon, another place was finally punctured, and the barrel of the syringe filled with pus. The needle was left in place to serve as a guide, and on cutting down, a place was reached where there was no more pus—simply the remnants of a collapsed cavity—on the posterior surface of the lower pole of the kidney, which was difficult to mobilize on account of the large number of adhesions. A drainage tube was inserted, the kidney capsule was stripped back, and no further evidence of kidney lesion was sought for. Notwithstanding this very prompt interference, the patient went through the typical septic course, became delirious, and went on to death. There was nothing to be found in the urine during the whole ten days or two weeks. The process limited itself to the cortex of the kidney. The main point was that the perinephritic abscess bore a very strong relation to that picture for which they owed so much to Doctor Brewer for having emphasized it in unilateral infection of the kidney.

Doctor FURNISS was much interested in what Doctor Lilienthal had said about postoperative infection. Two or three years before, he had studied a number of cases of postoperative infection, and most of the operations were upon or near the intestinal tract. None of the cases, however, came to operation. It seems probable that many cases of persistent pyelitis existed first as infection of the cortex. There was little pain accompanying this condition, but they could generally find muscle spasm. Another important point was the marked delirium where much of the cortex was involved. Still another thing about these perinephritic abscesses was that they could exist as perinephritic abscesses without primary involvement of the cortex. Several cases had been found at autopsy where the kidney was buried in inflammatory tissue without involvement of the cortex itself. It might have been better to have thoroughly explored the kidney when the abscess was opened, but it was difficult to get down to it. At the second operation the patient lost a large amount of blood and it was found necessary to give her a pint of blood from her husband in order to save her life.

Scientific Session, Held February 17, 1915.

Dr. LEO BUERGER in the Chair.

Unusually Severe Hematuria.—Dr. JOSEPH FRANCIS MCCARTHY's patient was admitted to the Postgraduate Hospital in September, with a history of hematuria for three months. He was in a condition of semishock from hemorrhage, and in urgent need of attention. Radiographic examination was negative. Cystoscopic examination conducted under gas oxygen anesthesia failed to clear up the diagnosis, owing to the fact that the bladder was so full of clots as to prevent the escape of fluid through a large cystoscopic sheath. It was impossible to inspect the bladder. The patient was then given an intravenous injection of normal salt solution, and the bladder opened suprapubically, but save for about a quart of blood clot which was removed, the bladder was normal. The incision was thereupon enlarged, a powerful drop light projected

into the bladder, and the ureteral orifices were studied. Close inspection revealed blood clots coming from the right ureteral orifice. Careful consideration seemed to render it advisable to explore his right kidney, which was done, and a hypernephromatous kidney removed. The patient underwent a satisfactory convalescence and had gained twenty pounds since operation.

1. Subparietal Rupture of Kidney; 2, Acute Suppurative Pyelonephritis; 3, Renal Tuberculosis.—Dr. HENRY G. BUGBEE presented these cases: 1. The first patient was thirty-one years of age, and gave a negative history previous to his injury. In December, 1912, he was working with an automobile and straining over while trying to lift an eighty to ninety pound transmission, he felt a severe pain in his abdomen. He continued lifting, but had afterward to stretch out on the floor for a while, and after he got home he rubbed his back with liniment and iodine. He continued work for the next few days, though he felt below par and had a pain in his side like a toothache. At the end of three days he went to see a doctor, who observed him for five days, and he then went to a hospital. The pain was continuous, but rather more of a soreness than pain. He began to have fever, as high as 102° F. at night. A cystoscopic examination showed a normal bladder with urine from both ureters normal. When pressure was made on one side, there seemed to be some tenderness. Doctor Bugbee saw the patient at this time. The lumbar region was tender on the left side, but there was no palpable mass. His temperature was 101° F.; pulse slightly exaggerated. It seemed possible that the kidney had been ruptured and that a hematoma had become infected. An incision was made, but when the kidney was reached there was a gush of foul smelling fluid, and it was apparent that the kidney had been ruptured. Three fingers could be placed in it. There was no odor of urine. The rupture had not communicated with the pelvis. The wound in the kidney was packed with gauze, which was slowly withdrawn from day to day. The wound finally healed, and the patient was recently cystoscoped. His urine was normal, and the function was only slightly diminished on the left side compared with the right.

2. The specimen shown was removed from a man twenty-six years of age. The patient had not been seen prior to operation, but the history given was that three years previously he had had an attack of pain in the right side of the abdomen, colicky in character, which passed away; but from that time on he had a number of similar attacks of pain, lasting sometimes for only a few minutes and at others for an hour, and then passing away. He had no urinary symptoms. He continued his work and was apparently in pretty good health, with the exception of occasional stitches in his side. Two weeks before he came under Doctor Bugbee's observation, he had a temperature ranging from 103° to 99° F., and occasional pain. The doctor, making a cystoscopic examination, reported pus from the right side. The functional test showed diminished function on that side. When first seen, he seemed to be suffering from some form of sepsis. The urine from the other side was normal. He was slightly tender over the kidney, which was not enlarged. It was removed

at the operation on account of the findings before operation and the apparently localized focus. Afterward it was opened and dissected by Doctor Sondern, who reported acute nephritis, multiple miliary abscesses, and a chronic nephritis of probably long standing. The interesting point was the acute suppurative process in the kidney, which had a lowered resistance from a process of several years' standing. When the kidney was opened there were found several small calculi in the pelvis.

3. The third case was that of a man thirty-one years of age, who four years ago had an epididymitis. He denied having had gonorrhea or syphilis. The swelling lasted five days and then disappeared. Then he began to have attacks of pain in the left side of the abdomen, which radiated to the left groin, and with the pain the left testicle was drawn up. These attacks varied in frequency; sometimes he had several in one day, and sometimes he was two months without an attack. When seen last July, his bladder was normal with the exception of a small area of redness and edema around the left ureter. The ureters were catheterized and the urine from the left side was slightly paler than from the other, and contained some pus cells, and two or three tubercle bacilli. He was advised to have the kidney removed, but could not have it done at that time. He entered the hospital in October, and it was impossible then to pass the catheter on that side. It entered only two cm., and then stopped. There was some redness. The picture was more that of a calculus than of tuberculosis. The kidney was not enlarged nor palpable, and aside from the attacks of pain, which could have been accounted for by colic or passing stones, the man was comfortable. He was cystoscoped several times, and in manipulating the catheter he passed some stones, and no positive decision was reached as to his condition. In October, Doctor Bugbee succeeded in catheterizing the patient, and a few tubercle bacilli were again found in the urine. A few weeks ago the kidney was removed. The upper half was almost entirely destroyed, and the lower half was almost normal. The ureter was not at all involved. The man left the hospital in two weeks' time, the urine apparently clear.

Doctor BREWER had been much interested in the specimen of pyelonephritis. The external lesions were characteristic, although it did not otherwise show much that was striking. There was some definite infection; probably the microscopic examination would show more lesions than the simple macroscopic examination.

Doctor KEYES said that as he understood it, the tuberculous specimen showed no lesions in the upper ureter, and yet the ureteral orifice had seemed inflamed. It would be interesting to know if the microscope showed no lesions in the portion of the ureter removed. He did not know whether it was possible to have lesions at both ends and none in the middle. He also expressed curiosity to know whether in the pyelonephritis case a stone was suspected before the kidney was removed. Had a stone been suspected, it would seem that the kidney might have been saved by nephrotomy and drainage.

Doctor BUERGER, some time ago, had reported two interesting cases of rupture of the kidney that oc-

curred in preexisting hydronephrotic organs, and that resulted in the formation of a subcapsular exudate, forming what was then described as pseudo-hydronephrosis or subcapsular hydronephrosis. In one of the cases the point of rupture in the hydronephrotic kidney could easily be found after removal of the organ. The specimen was examined after removal, the capsule containing the urinary exudate being intact.

Doctor BUGBEE, closing the discussion, said that no section had been made of the upper end of the ureter of the tuberculous kidney, but that the exposure was an ample one and it was very soft and apparently was not involved. The lower end of the ureter and bladder mucosa after ten days had entirely cleared up. It seemed to be a congestion rather than tuberculous deposits. In regard to the pyelonephritis, he had discussed the question of whether the kidney could have been saved with Doctor Sondern, who said that it could not have been done. The microscopic examination from all points showed minute foci and abscesses, and the kidney would undoubtedly have gone on to complete destruction. Doctor Sondern said that he had traced many of these cases, and those that were left in, had invariably come to operation later on.

Hematogenous Renal Infection.—Dr. GEORGE E. BREWER's communication on this subject appeared in the JOURNAL for March 20, 1915.

Doctor KEYES expressed his appreciation of Doctor Brewer's treatment of the subject, and his agreement with the writer on two points—first, that all infectious lesions of the kidney were different manifestations of the same process; and, second, that nothing short of nephrectomy would save the hyperacute cases.

Doctor FURNISS showed three specimens of surgical kidney. The first was an acute hematogenous infection; the kidney was enlarged and filled with innumerable infarcts, which had as yet not broken down. The primary source of infection could not be discovered. This patient was desperately ill, had a high temperature, and all during the illness there was great delirium. The second specimen showed a combination of acute hematogenous infection of the parenchyma, and a pyelitis, with distention of the renal pelvis. This was from a patient who had had a forceps delivery, with perineal laceration. She was catheterized for four days post partum, when she had a sharp rise of temperature with some pain in the right side of the back. From the eighth day post partum she was irrational and had a continuous high temperature. The kidney was removed fourteen days post partum, but she died within twenty-five hours. The third specimen was from a woman who had had a boil on her neck that healed without difficulty in a reasonable time. Fourteen days after the healing of the boil, she began to have high temperature, to feel sick, and to have very little pain in the left renal region and under the free border of the ribs. As she had a faintly positive Widal, it was thought that she might have typhoid, and that the resistance which was felt below the free border of the ribs, was due to an enlarged and tender spleen. He saw her when she had been sick for three weeks. The urine showed very few pus cells; indigocarmin was in-

jected intravenously and was slightly delayed in its elimination on the left side. A diagnosis of perinephritic abscess was made, and a large abscess was opened and drained. As the temperature did not subside after three weeks, an incision was made down to the kidney, which was delivered, the pedicle clamped, and the kidney removed. The hemorrhage from the dense infiltrated tissues and the granulations of the old wound were brisk, and the patient at the end of the operation was in bad condition. He and Doctor Peterson transfused 500 c. c. from the husband, and the patient then made an uninterrupted recovery. The specimen showed on the posterior surface of the kidney a roughened area which represented the anterior wall of the perinephritic abscess. In the lower pole of the kidney was a mass, the size of an English walnut, that on section presented numerous openings from which pus could be expelled. It looked very much like a carbuncle. The rest of the kidney appeared to be in good condition.

Doctor Brewer had stated that he had never been able to demonstrate a pyelitis of hematogenous origin. Doctor Furniss thought this might be possible, as he had recently seen a bladder that appeared to be the seat of very numerous embolic abscesses. It seemed to him that it is possible to get a hematogenous infection of the bladder, and of the pelvis of the kidney, too, in just the same manner as such infections of the kidney. He also believed that there were many cases of mild perinephritis that gave lumbar pain for a long time. Recently he has had three that were relieved by decapsulation. In all of these, he thought the primary lesion was an acute hematogenous infection.

Dr. ANTHONY H. HARRIGAN, referring to the specimens presented by Doctor Furniss, said that it should be remembered that this condition might occur in pregnancy. He had operated on a woman for this condition during the fourth month of pregnancy; he did a nephrectomy, the pregnancy continued uninterrupted, and she was delivered at term. It would be interesting to know what Doctor Brewer's experience had been with tuberculosis simulating this condition. A patient was admitted into Fordham hospital, in October, with what appeared to be an acute infection of the kidney or a retrocecal or colic appendicitis. Exploration revealed tuberculosis of the kidney, with a perinephritic abscess. The symptoms were similar to those described by Doctor Brewer as symptoms of acute hematogenous infection of the kidney.

As for the hematogenous infection of the lower urinary tract, referred to by Doctor Furniss, he had recently seen a case of streptococcemia in which the shoulder and elbow joints were affected. At autopsy were found septic pleurisy, septic pericarditis, multiple septic infarcts of the kidney, an abscess of the rectus muscle, and a severe infection of the bladder. In view of the autopsy findings, it seemed a fairly logical conclusion that the septic cystitis was of hematogenous origin.

Dr. LEO BUERGER asked Doctor Brewer if he had found it possible to make the diagnosis of acute hematogenous renal infection by means of the cystoscopic findings. Doctor Buerger realized the fact that in many of the cases microscopic examination

of the specimens revealed very little that might throw light upon possible infection of one kidney or the other, and would like to ask whether Doctor Brewer thought that more knowledge could not be gained by allowing the ureter catheters to remain *in situ* for a longer period of time than usual. Under such conditions, possibly the diseased kidney would deliver either bacteria or pus, that would not show if specimens were collected for only a short time. Further, he wished to inquire whether in the study of the pathology of this condition it had been found possible to differentiate between ascending pyelonephritis and acute hematogenous infection. In Doctor Buerger's own experience, he had found that in the latter stages of renal infection it was practically impossible, macroscopically and microscopically, to determine whether they were dealing with one or the other condition.

Doctor BREWER was pleased that the question of idiopathic pyelitis had been raised. They could have a hematogenous infection of any tissue of the body. It generally affected a tissue which was damaged and had had its resistance lowered; but the question in point was that in any hospital report or textbook they found many cases spoken of as the "pyelitis of childhood, pregnancy, etc." They heard that diagnosis all the time. It did not seem probable with the very minute blood supply of the capsule of the pelvis of the kidney, when compared with the great supply of the parenchyma, to have the disease localized entirely in the mucous membrane of the pelvis. Moreover, the symptoms of the cases described were the same—a little rise in temperature, a little costovertebral tenderness, possibly a little blood, and a slight trace of albumin. He had seen but one case of tuberculosis among these acute types, and that was a mixed infection—an old tuberculosis with acute septic infection. The question regarding blood cultures raised a very interesting point, but unfortunately he could not answer it, as most of these observations had extended over a very long period, and in the beginning blood cultures had not been understood nor practised. In the few mild cases where they were made, it was not surprising that the cultures were negative. If the urine could be collected and studied for a considerable time, one might obtain important data. He had often had to operate, however, without waiting for a cystoscopy and while in doubt about the condition of the other kidney. The main points in the urinary condition were that they were dealing with a kidney which was practically out of business; in other words, the function of the kidney was almost suspended and they got from that side only a few drops of bloody, highly albuminous urine, while the other side furnished an abundant supply of normal urine.

Doctor Brewer was accustomed to be criticized for doing a nephrectomy in these same cases, and to being told that the kidney might possibly be saved; but he was sure, after operating in four cases in which he tried to save the kidney, and seeing all these patients die within two or three days—and after seeing other patients die without any treatment at all—that a nephrectomy was the only thing that would save the patients in the fulminating type. These patients usually had a very high temperature, and often a chill; that was one of the most signifi-

cant symptoms. If they had a high temperature without chill, and if they did not have a sustained and progressive toxemia, it might be safe to treat them conservatively.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Therapeutics of the Circulation. By Sir LAUDER BRUNTON, Bt., M.D., D.Sc., LL.D. (Edin.), LL.D. (Aberd.), F.R.C.P., F.R.S., Consulting Physician to St. Bartholomew's Hospital. Second Edition. With Illustrations. New York: Paul B. Hoeber, 1914. Pp. xxiv-536. (Price, \$2.50.)

Among contemporary books on therapeutics this work has a peculiar position. It is based on experiment, and admirers of rational therapeutics will find their chosen arguments, but as a writer, teacher, and physician, Sir Lauder Brunton has an appeal to sensible men who adopt the Baconian maxim that the minutest detail, the humblest property of a plant or drug is not beneath the attention of the wise man. In this work we are told how to use drugs by a master in the art; we are told by a philosopher that we cannot always explain the effect, and we infer that effects often flow from causes which cannot be determined by animal experiments. The effect of calomel in cardiac disease and nephritis is an instance. We subscribe to Doctor Brunton's opinion. He writes: "I have met practitioners who have been so imbued with the fear of mercury that they would not give it in cases of cardiac disease either as a purgative or in combination with digitalis, because albumin had appeared in the urine; whereas in these very cases mercury was one of the best things to restore the circulation to its normal condition and cause the albumin to disappear." We have seen at Naunyn's clinic mercury administered in these circumstances with striking effects. It is such concrete instances that make Brunton's book so remarkable. It is rich in them, and every physician should study this work most carefully.

Cancer, Its Cause and Treatment. By L. DUNCAN BULKLEY, A.M., M.D., Senior Physician, The New York Skin and Cancer Hospital, etc. New York: Paul B. Hoeber, 1915. Pp. 230. (Price, \$1.50.)

This volume is made up of a series of six consecutive lectures delivered by the author at the New York Skin and Cancer Hospital, and is a presentation of his personal views with regard to the causation and treatment of cancer. Citations are made from the literature to show that the several theories previously advocated as to its etiology are without adequate support and have been generally rejected. His own view as to its causation may be stated briefly as follows: The condition is due to some nutritional metabolic disorder induced largely through excess in the consumption of animal protein, alcohol, and the caffeine beverages and augmented by the further disturbing factors of nervous instability and want of adequate exercise. Such metabolic disturbance is held to alter the composition of the nutrient fluids of the body in such a way that certain cells are led to take on more or less independent growth with an alteration in their metabolism and the assumption of malignant characteristics. The localization of the resulting malignant growth is held to be influenced by the general presence of embryonal cell rests, and possibly also by trauma or continued local irritation. This explanation of the etiology of cancer is built up on the inadequacy of previously offered theories and on the strength of certain more or less direct evidence. The direct evidence is largely of a statistical nature and has for its basis the figures which seem to show that the increase in cancer throughout the world has been more or less parallel with the increase of wealth and its concomitant excesses in living. The increase in the per capita consumption of meat is also held to be more or less parallel with the rise in cancer morbidity and mortality. A third factor in support of the metabolic cause of cancer is suggested by certain of the author's cases in

which it was believed that incipient, developed, and recurrent cancers had been caused to disappear in remarkably brief periods of time by resort mainly to an absolutely vegetarian diet. The theory offered is a pretty one and the author has taken much pains in his effort to support it. He frequently refers to the "facts" brought out in its support, but careful consideration of these "facts" shows them to be rather impressions which have been so presented as to resemble facts to the cursory reader. Even the statistics which he brings to the aid of his theory are not at all convincing and are capable of quite a different interpretation. When it comes to his case records, the evidence seems especially weak, for in none of them does he offer positive proof that the cures accomplished really were cures of cancer, as histological examinations are wholly wanting. It has been shown that even in external cancer wrong diagnosis is exceedingly frequent, although cancer experts made the diagnoses. Although Bulkley's theory is attractive in a certain limited way, and although he has expended much effort and argument in its support, one lays the volume down with the feeling that this is but another of those fanciful hypotheses which rests upon a basis far too thin for its support. In fact the support of the hypothesis is almost solely one of argument, and argument based upon evidence inadequate to carry conviction.

Die Nebenwirkungen der modernen Arzneimittel. Von Prof. Dr. OTTO SEIFERT, in Würzburg. Würzburg: Verlag von Curt Kabitzsch, 1915. Pp. xiv-282.

There can be little doubt that the study of the poisonous or by-effects of medicines is at least as important as that of physiological effects. Yet this study is commonly neglected, and most of the new remedies are administered with little knowledge of those various elements in their chemical structure which have side actions, often quite complex and likely to interfere with the action deduced from mere physiological study. Professor Seifert has produced a valuable book on this subject. Its title, *The By-Effects of Modern Remedies*, indicates its scope, which includes a great deal more than can be found in works on toxicology or even von Jaksch's *Vergiftungen* or Lewin's *Nebenwirkungen der Arzneimittel*. In Professor Seifert's book every new compound is mentioned with references to authorities. There are practical touches which are missed in textbooks and which mean so much, as in this about aspirin: "A certain number of patients become accustomed to its effects—a habit which has the singular merit that the dose need not been raised—an effect or property apparently connected with the fact that aspirin has an hypnotic action." Observations like this are found throughout the work. One objection to such a method of describing by-effects is that in some instances no real connection between the symptoms and the properties of the remedy can be traced. The author is alive to this error, but he has not always avoided it.

Child Training as an Exact Science. A Treatise Based upon the Principles of Modern Psychology, Normal and Abnormal. By GEORGE W. JACOBY, M.D., Fellow of the New York Academy of Medicine, Member of the American Medical Association, American Neurological Association, etc. With Illustrations. New York and London: Funk & Wagnalls Company, 1914. Pp. xiv-384. (Price, \$1.50.)

In this book Doctor Jacoby has addressed himself particularly to the needs of teachers along medical and hygienic lines. It is well that such instruction dealing with the psychical and developmental processes of the child should come from a physician who is himself both a neurologist and a pedagogue. Study of the individual is particularly dwelt upon, and the reader is shown that only by such methods can mistakes be avoided and seemingly impossible children reclaimed to become useful members of society. Doctor Jacoby is particularly fortunate in his presentation of the types of children whom physicians and teachers should be able to recognize as amenable to glandular therapy or surgical interference. Physician and teacher are brought into cooperation; one the one hand, the physician is made to realize his duty and the possibilities of helping these psychopathic cases, while the teacher is taught to appreciate the dependence of the psychic upon the physical conditions of her charges. A study of this book should increase a teacher's effectiveness and make her more tol-

erant with her backward pupils. Physicians will profit by a perusal and school physicians particularly should study it.

Transactions of the American Association of Genitourinary Surgeons. Twenty-eighth Annual Meeting held at the Red Lion Inn, Stockbridge, Mass., May 15 and 16, 1914. Vol. IX. Published for the Association by Frederick H. Hitchcock, New York. Pp. 180.

This volume is composed of papers read by various members of the association at their last annual meeting. The topics that attracted most attention were prostatectomy, diverticula of the bladder, and encrusted cystitis. Doctor Chute, in his article on Some Things that Influence the Mortality after Prostatectomy, brings out some points that could well be applied more generally in surgery.

Interclinical Notes.

The *British Medical Journal* for April 10th gives an editorial summary of the 1914 lecture before the British Academy by Sir Clifford Allbutt, on Palissy, the potter. Among Sir Clifford's comments was, "All the world went to wonder at the knowledge of a man without Latin or Greek!" This attitude is still common among university graduates. It is not so much the knowledge of the "unlettered" man which is objected to, as his impudence in parading it.

* * *

"I no givva damn!" These dreadful words occur in the *Outlook* for April 21st in a tale called *A Pair of Shoes*. We can forgive the author, Mr. Hermann Hagedorn, this profanity, but not for killing the baby to fit his climax. Infanticide should be strictly forbidden to our story writers as a means of exciting emotion—it is too easy.

* * *

Well, what do you think of this from the April issue of the *National Humane Review*, page 89? "Abundant evidence is available showing the generally degrading influences of newspaper selling, especially among younger children, because of its desultory nature, lack of supervision, discipline, or restraint, and the serious dangers to their morals." Some of Horatio Alger's best millionaires began as newsboys, and so did some real ones of our acquaintance. Isn't this very dangerous teaching? To accuse a millionaire of wrong doing or wrong thinking is perilously near to socialism or anarchy. Does not such loose talk belong to the salons of the I. W. W.?

* * *

We were greatly pleased and surprised to see the fiddler crab saying "Ah, there!" to its mate in the *April Current Opinion*; the crab uses the sign language, but its meaning is unmistakable. Dr. Robert T. Morris's *Wayside Notes* are appreciatively reviewed in this issue. There is a discussion of Wine of Cardui, schism, and the *J. A. M. A.* Startling modern pictures are reproduced, also modern criticisms and modern poetry. The popular *vers libre* looks so easy that we are tempted to get a meat chopper and do these notes in that style henceforward. There is an exciting story of a trip in a submarine; it is not considered necessary to carry a surgeon in this vessel, and very likely clergymen and undertakers would be equally superfluous.

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Art Young's amusing account of the performances of Congress in the April *Metropolitan* is well worth the attention of our colleagues, who pay too little heed to legislation, State and National. The beautiful pictures of this magazine deserve study, too. There is more about Mexico in the *Metropolitan* than in any other publication that comes to mind, and the extraordinary chaos that exists in that rich and magnificent country will repay study. The European war is not neglected, and there are several unusual stories, one a notable psychic study of a pubescent youth by Booth Tarkington, *The Fairy Father*.

* * *

Morris Hillquit, who may be trusted to speak authoritatively about socialism, tells why socialists fight in the April *Metropolitan*. The new editor, Theodore Roosevelt, has a few ringing words to say about our unpreparedness for invasion. We may remark, by the way, that Canada ere long will have an army of 200,000 fully equipped men.

There is a fine reproduction of one of Goya's paintings and a photograph of Polasek's statue, *Aspiration*, a strange, imaginative, and exquisite piece of work.

* * *

Doctor Jim tells the story of Mary Carolyn Davies's Across the Lake in the *May Young's Magazine*. Doctor Jim was evidently one of those practitioners of a type now happily becoming extinct who worked up a clientèle by their personal qualities and made up in *savior faire* what they lacked in scientific attainment. We judge this to be the case from the doctor's remark on seeing a delirious patient for the first time: "Fever! It's this night air that's done it." Subsequently Doctor Jim and the nurse become greatly "done up" from fighting this fever for three days and three nights; they must have fought with boxing gloves.

* * *

Doctor Pereira is an ophthalmologist of worldwide reputation in Edwin Pugh's *The Man Who Was Blind*, in the *May Young's Magazine*. Some of the doctor's ophthalmological theories are quite new to us, especially on the question of congenital blindness. He cures his patient, however, and the subsequent history is dramatic and well done, notably the terror of the patient when he first sees night descend upon the earth, interpreting this phenomenon as a return of his affliction.

* * *

Physicians as a class are said to be interested in white magic; perhaps this is an inheritance from the days when they dealt in the black variety in the way of practice. Robert Ganthony, the magician, tells of his adventures in western Canada in the *May Wide World Magazine*; he did not enjoy his trip, and has no hesitation in stating that the caboose of a freight train is inferior in comfort to a London west end flat; the odor, for example, in the former was composed of stale tobacco fumes, rancid oil, and burning coke, and resembled a compound of the smells from a motor omnibus, a fried fish shop, a collection of newly tarred coal sacks, and the cabin of a Channel steamer during a rough passage.

Meetings of Local Medical Societies.

MONDAY, May 3d.—Clinical Society of New York Throat, Nose, and Lung Hospital; German Medical Society of the City of New York; Utica Medical Library Association; Niagara Falls Academy of Medicine (annual); Brooklyn Hospital Club; Hornell Medical and Surgical Association; Clinical Society of the New York Polyclinic Medical School and Hospital; West Side Physicians' Economic League.

TUESDAY, May 4th.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Amsterdam City Medical Society; Lockport Academy of Medicine; Society of Alumni of Lebanon Hospital, New York; Syracuse Academy of Medicine; Buffalo Academy of Medicine (Section in Surgery); Ogdensburg Medical Association; Oswego Academy of Medicine; Medical Association of Troy and Vicinity; Medical Society of the County of Yates.

WEDNESDAY, May 5th.—Brooklyn Society for Neurology; Society of Alumni of Bellevue Hospital; Harlem Medical Association; Bronx Medical Association; Elmira Academy of Medicine; Psychiatric Society of New York; Society of Alumni of St. John's Hospital (annual); Schenectady Academy of Medicine.

THURSDAY, May 6th.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo; Geneva Medical Society; Glen Falls Medical and Surgical Society.

FRIDAY, May 7th.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; New York Microscopical Society; Gynecological Society, Brooklyn; Manhattan Dermatological Society; Practitioners' Society of New York (annual); Corning Medical Association; Saratoga Springs Medical Society (annual); Alumni Association of Roosevelt Hospital (annual).

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending April 21, 1915:

Collins, G. L., Passed Assistant Surgeon. Directed to proceed to Washington, D. C., and report at the Bureau for temporary duty in connection with the studies of industrial sanitation. **De Saussure, R. L.**, Assistant Surgeon. Directed to report to the director of the Hygienic Laboratory for duty; on instructions from the director, ordered to proceed to Anne Arundel County, Md., to assist in studies of rural sanitation. **Freeman, A. W.**, Epidemiologist. Directed to attend the annual conference for health officers at Rosedale, Kans., April 26-May 1, 1915. **Griffitts, T. H. D.**, Assistant Epidemiologist. Directed to proceed to various points in the Southern States for the purpose of making malarial survey and collecting data. **Hasseltine, H. E.**, Passed Assistant Surgeon. Granted one day's leave of absence on account of sickness, March 12, 1915. **Herring, R. A.**, Passed Assistant Surgeon. Directed to proceed to various points in the Southern States for the purpose of making malarial survey and collecting data. **Hoskins, J. K.**, Sanitary Engineer. Directed to proceed to Bowling Green, Ky., to confer with the city authorities in regard to the installation of a proposed sewerage system. **Keating, T. F.**, Assistant Surgeon. Directed to report to the commanding officer of the Coast Guard Cutter *Unalga* at Seattle, Wash., April 20, 1915, for summer cruise in Alaskan waters. **Krulich, E.**, Passed Assistant Surgeon. Directed, upon the request of the Commissioner of Education, Department of the Interior, to proceed to Washington, D. C., for conference relative to the sanitary relief of the natives of Alaska. **McMullen, John**, Surgeon. Directed to report at the Bureau for conference in the matter of the extension of antitrichinoma work. **Nydegger, J. A.**, Surgeon. Granted three months' leave of absence from April 26, 1915, with permission to go beyond the sea. **Stimson, A. M.**, Surgeon. Granted one day's leave of absence, April 13, 1915. **Treadway, Walter L.**, Assistant Surgeon. Granted ten days' leave of absence en route to station at Ellis Island, N. Y. **Von Ezdorf, R. H.**, Surgeon. Directed to proceed to Morgan City, La., for inspection of schooner *Colwell* arriving with suspicious cases of fever. **White, J. H.**, Senior Surgeon. Detailed to deliver an address on the Municipality and Its Relation to Public Health, at a meeting of health officers to be held at Muskogee, Okla., April 26-30, 1915. **Williams, C. L.**, Assistant Surgeon. Bureau letter dated February 17, 1915, amended to read "ten days' leave of absence from February 21, 1915." **Yarbrough, H. C.**, Assistant Surgeon. Directed to stop en route to Wilson County at Rosedale, Kansas, for conference with the State Health Officer in regard to the investigations of rural sanitation.

Board Convened.

Board of commissioned medical officers convened to meet at Ellis Island, N. Y., at the call of the chairman, for the purpose of considering certificates to be rendered when aliens are found to react to the Wassermann test.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending April 24, 1915:

Culler, Robert M., Captain, Medical Corps. Granted twelve days' leave of absence. **Hull, William E.**, First Lieutenant, Medical Corps. Granted two months' leave of absence. **McGuire, Edgar R.**, First Lieutenant, Medical Reserve Corps. Resignation of commission in the Medical Reserve Corps has been accepted by the President, to take effect April 17, 1915. **Moore, H. C.**, First Lieutenant, Medical Reserve Corps. Directed to proceed from Vancouver Barracks, Washington, to Fort Columbia, Washington, for temporary duty, relieving First Lieutenant F. M. Wall, Medical Reserve

Corps, who has been granted three months and ten days' leave of absence about April 25th. **Purnell**, Henry S., Captain, Medical Corps. Leave of absence from May 8 to and including June 1, 1915, has been granted; resignation of commission as an officer in the United States Army has been accepted by the President, to take effect June 1, 1915. **Skinner**, George A., Major, Medical Corps. Upon expiration of present leave of absence ordered to proceed to Fort Strong, Massachusetts, and report for duty. **Small**, Arthur A., First Lieutenant, Medical Reserve Corps. Resignation of commission as an officer in the Medical Reserve Corps has been accepted by the President, to take effect April 17, 1915. **Zeit**, Fred Robert, First Lieutenant, Medical Reserve Corps. Resignation of commission in the Medical Reserve Corps has been accepted by the President, to take effect April 17, 1915.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending April 17, 1915:

Asserson, F. A., Surgeon. Detached from the Atlantic Reserve Fleet and ordered to the *Wisconsin*. **Bowman**, F. H., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Ohio*. **Brams**, W. A., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Missouri*. **Brown**, H. L., Passed Assistant Surgeon. Detached from the *Ohio* and ordered to the Atlantic Reserve Fleet. **Calver**, G. W., Assistant Surgeon. Detached from the Naval Station, Guam, and ordered to the Asiatic Station. **Conklin**, F. L., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Hospital, Norfolk, Va. **Cress**, W. W., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Alert*. **Depping**, C. W., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Station, Guam, via June transport. **Dunbar**, A. W., Surgeon. Detached from the Atlantic Reserve Fleet and ordered to the *Missouri*. **Garrison**, H. A., Passed Assistant Surgeon. Detached from the *Maryland* and ordered home to await orders. **Green**, E. H., Medical Director. Placed on the retired list from April 18, 1915, detached from all duty, and ordered home. **Hayden**, Reynolds, Passed Assistant Surgeon. Detached from the *Alert* and ordered home to await orders. **McDonald**, Henry, Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Wisconsin*. **Michael**, W. H., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the Atlantic Reserve Fleet. **O'Brien**, C. S., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the Asiatic Station. **Omer**, J. A., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Annapolis*. **Ross**, C. W., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Maryland*. **Stibbens**, F. H., Passed Assistant Surgeon. Detached from the *Annapolis* and ordered home to await orders. **Stoops**, W. A., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Hospital, New York. **Taylor**, S. M., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to the Asiatic Station, via May transport. **Torrance**, R. A., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the Naval Hospital, Portsmouth, N. H. **Waterhouse**, Roscoe, Assistant Surgeon. Detached from the Naval Hospital, Portsmouth, N. H., and ordered to the *Montana*. **Wickersham**, W. W., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Prairie*. **Wilson**, Talmadge,

Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, and ordered to the Asiatic Station via May transport. **Wood**, C. I., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to temporary duty, Naval Hospital, Mare Island, Cal.

Births, Marriages, and Deaths.

Died.

Abel.—In Texarkana, Ark., on Sunday, April 11th, Dr. George C. Abel, aged fifty-five years. **Bowie**.—In Pittsburgh, Pa., on Thursday, April 15th, Dr. Alonzo Potter Bowie, aged sixty-eight years. **Brash**.—In North Germantown, N. Y., on Tuesday, April 13th, Dr. Arthur W. Brash, aged sixty-five years. **Carter**.—In Altoona, Pa., on Sunday, April 11th, Dr. William H. Carter, aged seventy-six years. **Cherry**.—In Columbus, Ohio, on Monday, April 12th, Dr. Wilbur T. Cherry, of McArthur, Ohio, aged forty-five years. **Creveling**.—In Phillipsburg, N. Y., on Monday, April 19th, Dr. Charles F. Creveling, aged fifty-two years. **Field**.—In Lowell, Mass., on Thursday, April 15th, Dr. James B. Field, aged fifty-six years. **Fryer**.—In Newbern, Tenn., on Wednesday, April 7th, Dr. Robert N. Fryer, aged eighty-three years. **Griffin**.—In Lewisport, Ky., on Saturday, April 10th, Dr. Albert Griffin, aged seventy-five years. **Hickok**.—In Roselle Park, N. J., on Friday, April 9th, Dr. George Benedict Hickok, aged seventy-one years. **Hubbell**.—In Syracuse, N. Y., on Monday, April 12th, Dr. Philo C. Hubbell, aged seventy-two years. **Hughes**.—In Salt Lake City, Utah, on Friday, April 9th, Dr. Michael H. Hughes, aged sixty-five years. **Hunter**.—In Brooklyn, N. Y., on Thursday, April 22d, Dr. William Lucius Hunter. **Irvin**.—In Danville, Va., on Saturday, April 10th, Dr. James Irvin, aged forty-seven years. **Koon**.—In Minneapolis, Minn., on Saturday, April 10th, Dr. Thomas M. Koon, of Grand Rapids, Mich., aged forty-five years. **Lee**.—In Omaha, Neb., on Tuesday, April 13th, Dr. Daniel F. Lee, aged thirty-seven years. **Lockwood**.—In Crystal Springs, Miss., on Tuesday, April 13th, Dr. Theodore P. Lockwood, aged seventy-six years. **McAllister**.—In New Bedford, Mass., on Friday, April 16th, Dr. John J. H. McAllister, aged thirty-nine years. **McDonald**.—In Coffeyville, Kans., on Tuesday, April 13th, Dr. Samuel G. McDonald, aged forty-two years. **McWilliams**.—In Mirwin, Pa., on Saturday, April 17th, Dr. W. McWilliams, aged ninety-three years. **Menzie**.—In Caledonia, N. Y., on Tuesday, April 20th, Dr. Robert J. Menzie, aged eighty-two years. **Niles**.—In Brooklyn, N. Y., on Sunday, April 18th, Dr. John Olmsted Niles, aged eighty-nine years. **Oldfield**.—In Philadelphia, on Wednesday, April 14th, Dr. Homer V. Oldfield, aged seventy-nine years. **O'Neill**.—In Bergenfield, N. J., on Sunday, April 25th, Dr. James W. O'Neill, aged sixty-one years. **Parsons**.—In New York, on Saturday, April 17th, Dr. John Parsons, aged seventy-three years. **Perry**.—In Baltimore, Md., on Tuesday, April 13th, Dr. John L. Perry, aged seventy-eight years. **Pierce**.—In Stockton Springs, Me., on Friday, March 26th, Dr. James Albert Pierce, aged seventy years. **Price**.—At sea, on Friday, April 16th, Dr. Marshall Langton Price, of Boise, Idaho, aged thirty-six years. **Ray**.—In Sangerville, Me., on Monday, April 12th, Dr. Charles Willard Ray, aged fifty-five years. **Sheehan**.—In Ossining, N. Y., on Sunday, April 25th, Dr. Edward F. Sheehan, aged fifty-five years. **Small**.—In Atlantic City, N. J., on Tuesday, April 20th, Dr. Alexander H. Small, of Riverside, N. J., aged fifty-five years. **Ure**.—In Pittsburgh, Pa., on Friday, April 16th, Dr. Walter Ure, aged eighty-two years. **Warren**.—In Roy, Wash., on Saturday, April 10th, Dr. Samuel S. O. Warren, aged seventy-six years. **Wall**.—In Chicago, Ill., on Thursday, April 15th, Dr. Clarence H. Wall, aged thirty-five years. **Walter**.—In Philadelphia, on Saturday, April 17th, Dr. Max Walter, aged forty-one years. **Wright**.—In Louisville, Ga., on Wednesday, April 14th, Dr. Jefferson D. Wright, aged fifty-six years.

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Original Communications.

THE RADICAL CURE OF ERRORS OF REFRACTION.

By Means of Central Fixation.

By W. H. BATES, M. D.,
New York.

INTRODUCTION.

In most textbooks on ophthalmology it is clearly stated that errors of refraction are incurable, and that relief of the symptoms can be obtained only with the aid of glasses. My investigations during the past twenty-five years have convinced me and others that errors of refraction can be cured by treatment without glasses.

I have been engaged during the past three years in the physiological laboratory of the College of Physicians and Surgeons of Columbia University, New York, in a series of experiments on the eyes of animals, which show, I believe, that the prevalent ideas concerning the causes of errors of refraction are not correct. Those ideas ascribe such errors to permanent, innate, or acquired deformations of the eyeball. My experiments seem to demonstrate that we can go farther back and find such deformations in abnormal strain of the extrinsic muscles of the eye. In animals, myopic refraction is produced by excessive contraction or strain of the oblique muscles; hypermetropic refraction by an excessive contraction or strain of the recti muscles; and astigmatism by a modification of the action of the extrinsic muscles.

I. EXPERIMENTS ON THE EYES OF ANIMALS. CONCLUSIONS.

1. A strain of two or more of the extrinsic eye muscles produced by electrical stimulation or advancement is always followed by an error of refraction. Relaxation of these muscles by one or more tenotomies always prevents the production of errors of refraction by a strain.

2. Neither the crystalline lens nor the ciliary muscle is a factor in the production of either myopic refraction or accommodation. (See *Bulletin of the New York Zoological Society* for November, 1914.)

3. When the two oblique muscles are present and active, myopic refraction or accommodation is always produced by:

- Electrical stimulation of the eyeball;
- Electrical stimulation of either the third or fourth nerves near their origins in the brain;

c. Traction inward of the insertion of either the superior or the inferior obliques;

d. Advancement or a tucking operation of one or both obliques.

4. After myopic refraction is produced, it becomes increased after a tenotomy of one or more of the recti.

5. Myopic refraction is never produced by electrical stimulation:

a. After a tenotomy of one or both obliques;

b. After the subconjunctival injection of a two per cent. solution of atropine sulphate deep into the orbit. Instillation of atropine in the conjunctival sac may lessen but not prevent the experimental production of myopic refraction.

6. After a tenotomy of one or both obliques, and when two or more of the recti muscles are present and active or capable of moving the eyeball in two or more directions, hypermetropic refraction is always produced by:

a. Electrical stimulation of the eyeball;

b. Electrical stimulation of the third nerve near its origin in the brain;

c. Traction forward of the insertion of one rectus muscle;

d. An advancement or tucking operation of one or more of the recti.

7. Hypermetropic refraction is never produced by electric stimulation:

a. After a tenotomy of all the recti;

b. After the subconjunctival injection of a two per cent. solution of atropine deep in the orbit; or by instillation into the conjunctival sac.

8. Astigmatism is usually produced and combined with myopic or hypermetropic refraction produced experimentally.

9. Mixed astigmatism is produced by a traction of the insertion of the superior rectus directly upward, and in other ways. In these cases myopic refraction in one meridian is never produced after a tenotomy of the inferior oblique, while hypermetropic refraction in one meridian is never produced after a tenotomy of the inferior rectus.

10. Advancement of both obliques with advancement of the superior and inferior recti always produces mixed astigmatism.

11. When considerable myopic refraction is produced experimentally, the optic axis is evidently lengthened (Fig. 4); in a high degree of hypermetropic refraction it is shortened; after the production of a large amount of mixed astigmatism the cornea becomes markedly elliptical.

12. In eyes after the removal of the lens, myopic, hypermetropic, and astigmatic refraction is produced

as mentioned above in normal eyes. Atropine, as in normal eyes, prevents the production of myopic, hypermetropic, and astigmatic refraction, in lensless eyes by electrical stimulation.

The following are details of experiments on the eyes of animals:

EXPERIMENTS ON ACCOMMODATION.

I. A perch was placed in a square glass jar 12" by 6" by 6" nearly filled with water, about two drams of ether was added and the top was covered with a board. In half an hour the perch became less active and was removed from the jar. It was difficult or impossible to measure the refraction satisfactorily by the aid of the retinoscope in the air. The fish was returned to the glass jar, head near the surface, and was supported by fixation forceps fastened to the lower jaw. With the eye immersed the refraction by retinoscopy was nearly normal. At three feet distant with a plane mirror, self illuminated by electric light, the battery being in the handle of the retinoscope, the shadow in the pupil moved with the movement of the mirror with a convex spherical glass plus 1 D. held close to the eye of the perch, and with plus 2 D. the shadow moved in the opposite direction.

When the eye was examined in the air, the illumination of the retina or the light reflex obtained was fainter, but sufficient to enable the observer to note that the refraction was nearly the same as when the eye was immersed in the water. On continued exposure to the air, but even in the than five minutes, no light reflex from the pupil was obtained with the retinoscope. However, immediately after the reimmersion into water a bright reflex was visible in the pupil when the light was reflected into the pupil by the retinoscope.

The head of the perch was lifted above the surface of the water and the eye was stimulated with the faradic current. Muscular movements of the head and body of the fish were manifest. The eye was then immersed. Retinoscopy now indicated myopic refraction in all meridians; or in other words, accommodation. The myopia remained for some minutes and then gradually subsided until it disappeared altogether, the eye becoming nearly normal as before. The same phenomena occurred with the other eye. The perch was removed from the water and placed on a table, and the superior oblique of the right eye was cut transversely. Electrical stimulation of the right eye did not then produce accommodation as in the left eye. Conclusion: The ciliary muscle does not produce accommodation in the perch.

II. In another experiment on a rock bass, both eyes were found to be emmetropic when examined in water. Electrical stimulation of the right eye produced myopic refraction or accommodation. The superior oblique was then divided, after which electrical stimulation produced no accommodation. The divided superior oblique was next united by a suture. Electrical stimulation then produced accommodation as at first.

Both the superior and inferior obliques were then removed from the right eye. Twenty-four hours later, ten days later, and even six weeks later, electrical stimulation of the right eye produced no accommodation at any time, but always resulted in hypermetropia, which was usually corrected by plus 5 D. sphere. Electrical stimulation of the left or nonoperated eye on the same dates always produced accommodation or myopic refraction. These experiments were witnessed and confirmed by a number of physicians.

III. Decapitated dog; emmetropic. Electrical stimulation of the eyeball produced myopic astigmatism which was corrected by minus 2 D. cylinder, 90°. After tenotomy of the superior oblique, electrical stimulation produced compound hypermetropic astigmatism, which was corrected by convex 2 D. and convex 3 D. cylinder, 180°. After tenotomy of the superior rectus, the refraction became normal and was not changed to myopic or hypermetropic refraction by electrical stimulation. This experiment is offered as additional evidence that the lens is not a factor in the production of myopic refraction or accommodation. It also indicates that the obliques produce myopic refraction and that the recti produce hypermetropic refraction.

Congenital absence of one oblique. Strong evidence that the obliques are the muscles that produce

myopic refraction or accommodation is found in the fact that while electrical stimulation of the oblique eye muscles always produces accommodation when the two obliques are present and active; it is never produced in animals with a congenital absence of one oblique. Moreover, when the countertraction is supplied by a suture inserted near the usual location of the absent oblique in these cases, accommodation is always produced by electrical stimulation. The following experiment illustrates this:

IV. Dogfish, decapitated, emmetropia; electric stimulation on the eye produced no accommodation. The inferior oblique was absent and a suture was inserted in its usual location. Accommodation was then produced by electrical stimulation of either the eyeball or the fourth nerve near its origin in the brain. A two per cent. solution of atropine sulphate was applied to the fourth nerve and thereafter electrical stimulation of the fourth nerve produced no accommodation. It should be mentioned that soon after the removal of the lower lid the cornea became cloudy and the refraction could not be measured by retinoscopy. Whenever electrical stimulation or advancement of one oblique did not produce myopic refraction or accommodation, investigation always revealed the absence of one oblique; or, as in all cats observed, an inactive or insufficient oblique.

V. *Production of myopia.* A rabbit had hypermetropia 4 D. S. The superior oblique was advanced by a tucking operation and the refraction was then corrected by convex 2 D. S. and convex 2 D. C., 180°. The eye was examined frequently during fourteen days and remained unchanged. Seventeen days after the operation the refraction had returned to convex 4 D. S., the amount existing before the advancement of the muscle. Examination of the site of the operation showed that the suture inserted in the muscle had cut its way through and the oblique was no longer shortened.

A large number of rabbits were operated upon by advancement of either the superior or inferior oblique or of both at the same or at different times, without obtaining a permanent production of myopia. In all cases the suture cut through the delicate ribbonlike muscle very soon; generally in a few days, when the refraction became the same as before the operation. To increase the effect of the advancement, a tenotomy of one or more of the recti was frequently done without much if any permanent effect.

VI. *Production of hypermetropia.* Carp, decapitated, emmetropia. Had hypermetropic astigmatism after advancement of the superior rectus which was corrected by convex 5 D. C., 180°. After electrical stimulation of the eyeball, the error of refraction was corrected by concave 2 D. S. and convex 11 D. C., 180°; after tenotomy of the superior oblique the error of refraction was corrected by convex 16 D. C., 180°. Thus, after the production of hypermetropic astigmatism, electrical stimulation produced myopic refraction in one meridian and increased the amount in the hypermetropic meridian. After tenotomy of the superior oblique, the hypermetropic meridian was increased, while the normal meridian remained unchanged. In eyes which have not been operated upon, a tenotomy of one or both obliques does not produce hypermetropia nor increase it when it is present. Neither does a tenotomy of one or all of the recti produce myopia.

VII. Decapitated cat, emmetropia. Electrical stimulation of the eyeball produced hypermetropia of 1 D. S. After tenotomy of the superior oblique, there was no change in the refraction and electrical stimulation of the eye produced more hypermetropia, which was corrected by convex 9 D. S. Tenotomy of the superior rectus did not change the refraction from the normal, but thereafter electrical stimulation produced no hypermetropia. The same results were obtained in many other cats and no exceptions were observed. Conclusion: Hypermetropia is produced in the eyes of cats by electrical stimulation before and after tenotomy of the superior oblique and is prevented by a tenotomy of one or more of the recti.

EXPERIMENTS ON LENSELESS EYES.

VIII. Carp; by retinoscopy both eyes were emmetropic. Electrical stimulation of each eyeball produced accommodation or myopic refraction. Simple extraction of the lens with the aid of a spoon was done, after a peripheral corneal section. Eleven days later, the eye was healed and the pupil was sufficiently clear to measure the refraction objectively with the aid of the retinoscope. With the eye immersed in water the refraction was corrected by convex 23 D.S. Electrical stimulation produced less hypermetropia; or in other words, accommodation.

IX. Cat; twenty-four hours after decapitation the right eye was emmetropic by retinoscopy. A narrow bladed cataract knife was made to enter the interior of the eyeball from above and just behind the equator. The point of the knife was pushed downward and forward and passed through the periphery of the lens into the area of the pupil. The point with the flat surface of the blade looking forward was then pressed backward, forcing the lens downward below the axis of vision. The refraction was then corrected by convex 17 D.S. With the aid of a pair of fixation forceps, the insertion of the superior oblique was rotated inward and backward. For some minutes the refraction was corrected by convex 15 D.S.: i. e., myopic refraction of 2 D. was produced. Traction upward and forward of the insertion of the superior oblique was made. The refraction was then corrected by convex 20 D.S.: i. e., hypermetropic refraction of 3 D. was produced. Traction of the insertion of the superior oblique upward and nearly parallel to the plane of the iris was made. The refraction was then corrected by convex 15 D.S. and convex 3 D.C. at 180° : i. e., mixed astigmatism, corrected by concave 2 D.C. 180° and convex 1 D.C. 90° was produced.

X. Carp; decapitated; emmetropic. The left lens was pushed outside the axis of vision by Dr. C. Barnert. The refraction was corrected by convex 16 D.S. After electrical stimulation the refraction was corrected by convex 13 D.S., i. e., accommodation of 3 D.S. was produced.

XI. Pearl roach; emmetropic. The lens of the left eye was dislocated outside the axis of vision and the refraction was corrected by convex 16 D.S. After electrical stimulation the refraction was corrected by convex 14 D.S., i. e., accommodation of 2 D.S. was produced. These last two experiments were witnessed by three other physicians.

XII. Rabbit; simple extraction of the lens of the right eye. Two months later, by retinoscopy, hypermetropia of 17 D.S. Electrical stimulation lessened the hypermetropia or produced accommodation, the error of refraction being corrected by convex 14 D.S. and convex 2 D.C. 180° . In other experiments on rabbits, after the removal of the lens, the hypermetropia was always lessened or accommodation was produced by electrical stimulation.

EXPERIMENTS WITH ATROPINE.

XIII. Cat, decapitated. Both eyes were emmetropic. Electrical stimulation did not produce myopic refraction or accommodation. The superior oblique of both eyes was advanced without altering the refraction, and electrical stimulation then produced accommodation. The third and fourth nerves were exposed near their origins in the brain. Electrical stimulation of either nerve produced accommodation. A small piece of cotton wet with a two per cent. solution of atropine sulphate in 0.8 per cent. chloride of sodium solution was placed in contact with the third nerve near its origin. In less than one minute an electrical stimulation of the third nerve did not, while stimulation by electricity of the fourth nerve, did produce accommodation. After the atropine solution was applied to the fourth nerve, electrical stimulation of the fourth nerve did not produce accommodation. The origins of the third and fourth nerves were washed with an 0.8 per cent. salt solution, clean of atropine. After this, electrical stimulation of either nerve produced accommodation. Cotton wet with atropine solution was next applied to the fourth nerve and electrical stimulation did not produce accommodation, although accommodation was possible through stimulation of the third nerve. The atropine was again applied to both nerves, and electrical stimulation of either or both failed to produce accommodation. The atropine was then washed off the nerves and the experiment repeated with the same results as before. Always after atropine was applied to both

nerves and electrical stimulation of one or both failed to produce accommodation, the application of the electrical current to the eyeball resulted in accommodation or myopic refraction. Accommodation was produced two hours after the cat was decapitated in a room at a temperature below 70° F.

XIV. Dog, emmetropic. Electrical stimulation produced myopic refraction or accommodation. After tenotomy of the superior oblique, electrical stimulation produced hypermetropia of 4 D.S. After the subconjunctival injection deep in the orbit of five minims of a two per cent. solution of atropine sulphate in 0.8 per cent. chloride of sodium, there was no change in the refraction upon electrical stimulation; in other words, atropine injected deep into the orbit prevented the production of hypermetropic refraction by electrical stimulation.

XV. Rabbit with hypermetropia of 4 D.S. atropine sulphate two per cent. solution instilled in the conjunctival sac daily for two weeks, did not change the refraction. Electrical stimulation produced myopic refraction or accommodation to the same degree apparently as before the atropine was instilled.

From this and other experiments the impression was obtained that the instillation of atropine in the conjunctival sac had little or no effect in preventing accommodation by electrical stimulation. In other experiments on normal eyes and eyes with hypermetropia the injection of atropine deep into the orbit usually prevented accommodation or myopic refraction by electrical stimulation.

TRACTION EXPERIMENTS.

XVI. Decapitated carp, emmetropic. A thread was fastened to the insertion of the superior oblique. Traction of the thread inward and forward, or downward and forward, produced simple hypermetropia which was corrected by convex 5 D.S.; traction backward and inward caused simple myopia; while traction in the plane of the iris produced mixed astigmatism. Myopia, myopic astigmatism, compound myopic astigmatism, hypermetropia, hypermetropic astigmatism, compound hypermetropic astigmatism, or mixed astigmatism were all produced by traction on the thread in various directions.

XVII. Decapitated carp, emmetropic. Rotation downward and inward or in other directions with the aid of a suture fastened to the external rectus produced no change in the refraction of the right eye. Pulling strongly on the suture forward produced hypermetropia, which was corrected by convex 5 D.S. Traction downward and forward and inward produced hypermetropic refraction which was corrected by convex 3 D.S., and convex 7 D.C. at 90° . Electrical stimulation produced an error of refraction which was corrected by convex 14 D.S. and concave 16 D.C. at 180° . After a tenotomy of the superior oblique, the error of refraction was corrected by convex 3 D.S. and 7 D.C. at 90° . Electrical stimulation then increased the hypermetropia in all meridians, which was corrected by convex 10 D.S. and convex 6 D.C. at 90° . After tenotomy of the superior rectus the hypermetropia disappeared and the eye became emmetropic. Electrical stimulation then produced no effect.

The point has been raised that while in rabbits, dogs, fishes, and other animals, traction of the two obliques may squeeze the eyeball transversely in such a way as always to lengthen it, accommodation in the human eye cannot be produced in the same way. To determine the matter the following observation was made: A woman with myopia of 20 D. S., who consented to the experiment, had the inferior oblique exposed near its origin at the lower and inner part of the orbit by an incision through the lower lid. The tendon was grasped by fixation forceps and traction was made downward, inward, and backward. By simultaneous retinoscopy the myopia was found increased, indicating the production of myopic refraction or accommodation. This observation proved that accommodation can be pro-

duced in the human eye by traction of the inferior oblique.

Lucien Howe (*Muscles of the Eye*, 1, p. 68) has described the reflections from the cornea and posterior surfaces of the lens when the lens was tipped in various directions during accommodation. I have found that traction on the obliques or recti of the eyes of dogs, cats, rabbits, and fishes produces the same phenomenon, of tipping of the lens out, in, forward, or backward, which indicates that the symptoms of tipping of the lens that are assumed to be due to the action of the ciliary muscle can be produced by the action of the extrinsic muscles. I believe that the ciliary muscle has nothing whatever to do with tipping of the lens, because after tenotomy of one oblique and one of the recti, the phenomena of tipping were not observed after electrical stimulation as they were before.

Curvature of cornea. In rabbits the ophthalmometer indicated that accommodation was usually produced without changing the curvature of the cornea. The results were so constant as to warrant the belief that in the rabbit, as has been demonstrated in the human eye by Javal and others, accommodation is not produced by a change in the corneal curvature.

Ciliary muscle. Much has been written on the connection of the ciliary muscle with the production of accommodation. The theories of Helmholtz, Müller, Hess, Tscherning, and others are well known. They are based largely on the changes which occur in the images of a source of light reflected from the anterior and posterior surfaces of the lens during accommodation. These images of Purkinje were studied in the eyes of rabbits, dogs, cats, and fishes before and after the production of accommodation by electrical stimulation. The same changes were observed at times, as have been described by observers who studied the human eye. It was possible also by traction experiments, by varying the resultant of pulls on the eyeball, to obtain images which indicated various changes in the position and curvature of the lens. Fishes' eyes, when examined after immersion in water, were favorable for the experiments because the reflections from the cornea were eliminated and it was easier to see the reflections from the anterior and posterior surfaces of the lens. After tenotomy of one or both obliques the images of Purkinje did not change their location on electrical stimulation of the eyeball, indicating that the curvature or location of the lens was not altered. The experiments offered strong evidence that the ciliary muscle is not a factor in changing the curvature of the lens during accommodation. They also reconciled the conflicting observations and theories of the many observers.

Bier's experiment. Theodore Bier (*Die Accommodation des Auges in der Tierreihe, Wiener klinische Wochenschrift*, 42, 1898) has stated that fishes' eyes when at rest are myopic and that in order to see distant objects clearly, the myopia is corrected by drawing back the lens closer to the retina with the aid of a muscle inside the eyeball connected with the lower margin of the lens. My experiments and observations disprove his theory. Fish can accommodate or adjust the focus to see distinctly at four inches, and this power of accommodation is always

lost after a tenotomy of one oblique muscle. Electrical stimulation always produces myopic refraction when both of the obliques are present and active, and this is never produced in fishes which have but one oblique, but after a suture is inserted in the usual location of the absent oblique to furnish countertraction, electrical stimulation which contracts the oblique which is present has always produced accommodation. (See dogfish observation and Experiment IV.) The removal of the lens does not prevent accommodation by electrical stimulation.

II. OBSERVATIONS ON THE EYES OF HUMAN BEINGS.

A large number of original observations on the eyes of adults and children with normal vision, on those with defective sight from errors of refraction, and on the eyes of adults after removal of the lens for cataract, and a study of the phenomena of sight in amblyopia ex anopsia, have tended to support the foregoing results from animal experimentation and have led to the following conclusions with reference to the human eye:

The sole cause of all uncomplicated or functional errors of refraction is a conscious or an unconscious effort or strain to see. The only remedy for this strain is relaxation. Relaxation or rest of the eyes is accomplished only by central fixation. These facts were obtained both objectively, with the aid of the retinoscope, ophthalmoscope, and ophthalmometer; and subjectively, from the testimony of the persons under examination.

The optic or visual axes are always parallel when a point at an infinite distance is regarded by each eye at the same time by central fixation. Muscular insufficiency or heterophoria is then always absent.

The lensless eye. After the lens was removed for cataract and the refraction for infinity was corrected by glasses the following observations were made: In all cases when the eye regarded a small letter of the Snellen test card at twenty feet by central fixation, simultaneous retinoscopy indicated that the glasses corrected the refraction. When a small letter was read by central fixation at twenty inches, simultaneous retinoscopy indicated that the eye was accommodated and that the myopic refraction or accommodation was corrected by a concave twenty inch spherical lens or minus 2 D. S. When the lensless eye with the distance glasses read a small letter by central fixation at thirteen inches, at ten inches, or a less distance, simultaneous retinoscopy always indicated that the eye was accurately focused. When the lensless eye read a small letter of the Snellen test card at twenty feet by eccentric fixation, simultaneous retinoscopy indicated either myopic refraction in one or all meridians or that the distance glasses were too strong. When a letter was regarded at twenty inches or less by eccentric fixation, simultaneous retinoscopy always indicated that the eye was focused for a greater distance in one or all meridians. In the lensless eye an effort to see near, always produced hypermetropic refraction.

Central fixation. By central fixation is meant the ability of the eye to look directly at a point, and while doing so to see best with the centre of the fovea or the centre of the sight of the retina. When a person with a normal eye which is capable usually of reading the Snellen test card at twenty feet with

normal vision 20/20, regards one small letter of the Snellen test card at twenty feet or regards one letter of diamond type, Jaeger No. 1, at a near point, say ten inches, by central fixation the following phenomena become manifest.

Subjective: By central fixation maximum vision is obtained. While the ability of the normal eye to read the twenty line at twenty feet in a good light

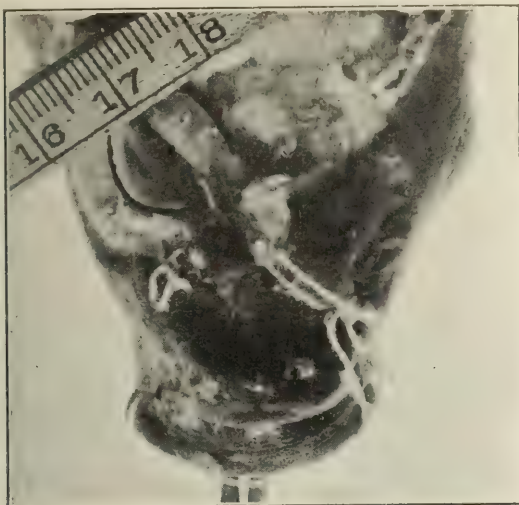


FIG. 1.—Carp with eyeball of normal length and emmetropic.

is considered to be normal vision, a much greater acuity of vision is observed when the part of each letter that is regarded and seen better than the rest of the letter is smaller or more nearly approaches a point. Letters or parts of letters outside the point of fixation are always less distinct than those at the fixation point. When the top of a small letter at twenty feet is regarded by central fixation the bottom of the same letter appears less black, but the whole letter is clearer, the black appears a darker shade of black, and the white part of the letter appears whiter than when all parts of the letter are seen equally well. The eyes feel no strain when regarding a small letter for a short time or continuously at twenty feet, or when regarding one letter of diamond type at twelve inches, six inches, or a less distance, from the eye. Squinting, or partly closing the eyelids, or regarding a letter through a small opening, always lowers the vision of central fixation.

Objective: Simultaneous retinoscopy, or the examination of the eye with the retinoscope at the same time that the eye is regarding a distant or near letter, indicates always that the eye is accurately adjusted or accommodated for the point regarded by central fixation. In other words, when the point fixed is at infinity, no error of refraction is manifest and the eye is emmetropic. When the point is at four inches, the refraction of the eye is corrected by a concave four inch spherical lens—minus 10 D. S. The ophthalmometer indicates no corneal astigmatism of the normal eye when regarding a distant or near letter by central fixation. The appearance of the normal eye when regarding a distant or near letter by central fixation, is usually expressive of rest or relaxation. The eye is open, quiet, with no nervous movements, and the pupil is moderately

dilated. The muscles of the face are generally in repose, while other muscles of the body appear also relaxed and at rest. The optic or visual axes are always parallel when a point at an infinite distance is regarded by each eye at the same time by central fixation. Muscular insufficiencies or heterophoria are always absent.

Eccentric fixation. By eccentric fixation is meant the ability of the eye partially or completely to suppress the vision of the centre of the fovea and to see best with other parts of the retina. When a person with normal vision regards one small letter of the Snellen card at twenty feet, or regards one letter of the diamond type at six, ten, twenty inches, etc., by eccentric fixation, the following phenomena become manifest.

Subjective: The person notes that the vision for letters or words is always less distinct than with central fixation, not only for the letters or words regarded, but also for those seen better in other parts of the field. One part of a letter fixed or regarded is less distinct than other parts of the same letter not fixed or regarded. Black letters appear less black than by central fixation; white letters on a black background appear less white; letters of different colors have a lighter shade of color. The edges of the letters are not clean cut and have a fuzzy or shadowy margin. The size of letters is altered; they appear larger or smaller than with normal vision. Their shape is distorted: a square letter may seem to be round. The curved lines may appear more like straight lines or straight lines as if somewhat curved. Illusions of sight occur; in some cases dark spots or irregular shapes are seen on a

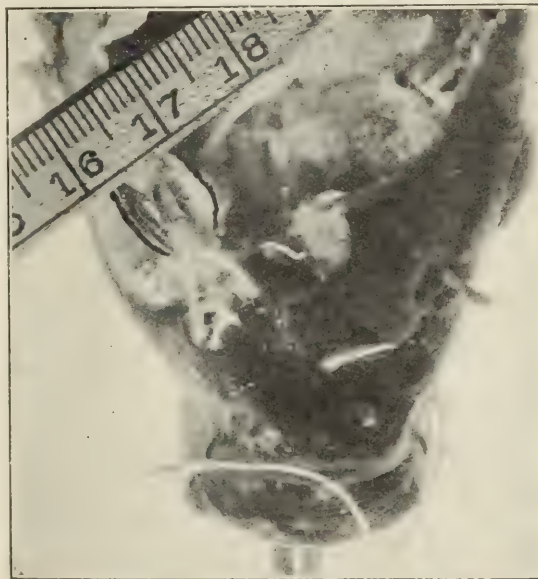


FIG. 2.—Same as Fig. 1, but with hypermetropia produced by advancement of the external and internal recti. Note that the eyeball is shortened.

white background. Polyopia is frequent; sometimes it is binocular, but usually it is monocular. With both eyes or with one eye covered a person with normal eyes when regarding one letter at twenty feet or six inches or at any distance by eccentric fixation, may describe the location of two, three, or four images, all of which are less distinct than the

one image of the same letter seen by central fixation.

Pain, fatigue, tension, or discomfort of some kind is usually felt in the eyes during eccentric fixation. The discomfort may become manifest only after the eyes are closed. Headaches are frequently produced by eccentric fixation when regarding a distant letter or a letter at the reading distance.

An important symptom is twitching of the muscles of the eyelids or of the eyeballs. It is always present when a letter is regarded by eccentric fixation either at twenty feet, six inches, or any distance from the eyes. Usually it is an unconscious manifestation of eccentric fixation. The twitching becomes evident when one lightly touches the closed eyelids of one eye while the other eye is regarding a letter by eccentric fixation; a fluttering or intermittent movement of the eyelids or of the eyeball is then felt. Squinting or partly closing the eyelids or regarding a distant or near letter through a pin-hole opening in a card, always improves the vision of eccentric fixation.

Objective: When a small letter of the Snellen test card at twenty feet is regarded by eccentric fixation, simultaneous retinoscopy always indicates myopic refraction in one or all meridians. When a small letter of diamond type is regarded at twenty inches or less by eccentric fixation, simultaneous retinoscopy always indicates hypermetropic refraction in one or all meridians. The ophthalmometer usually indicates corneal astigmatism during the time the normal eye regards a distant or near letter by eccentric fixation. The ophthalmoscope reveals an important symptom of eccentric fixation: the eyeball always moves at irregular intervals from side to side, vertically or in other directions. The appearance of the normal eye when regarding a distant or near letter by eccentric fixation is usually expressive of effort or strain. Twitching of the muscles of the eyelids can usually be observed and may be more evident immediately after the eyelids are closed. Often the movements of the eyeball become so extensive as to be manifest by ordinary inspection; in some cases they are sufficiently marked to resemble nystagmus.

The optic axes in eccentric fixation are never parallel; convergent, divergent, or vertical squint is noted. Lesser degrees of lack of balance of the eye muscles, muscular insufficiencies, are always present.

Eccentric fixation produces redness of the ocular conjunctiva and margins of the lids. Wrinkles of the forehead and dark circles under the eyes appear. The eyes may water.

The optimum. When a person with myopia, hypermetropia, or astigmatism, regards a certain letter or object under favorable conditions, simultaneous retinoscopy reveals little or no error of refraction. The letter or object so regarded may be called the optimum. The favorable conditions include proper or sufficient illumination and quiet. The optimum may be a telegraph wire, a distant light, a crack in the floor, a small area of blue, green, or dark blank wall paper, a large or small white card, a hole about one half inch in diameter in a Snellen or other large card, the vertical or horizontal edge of the face or back of the Snellen card, a blank spot about

one half inch in diameter on a blank white card, a certain number, which is most frequently the number 7, one letter of the alphabet, or the face of a well known relative or friend. Usually, but not always, a small letter of the Snellen card, as the first or last letter of the tenth line regarded at five, ten, or twenty feet, is an optimum. An optimum for one eye may not be an optimum for the other eye or for both when regarding it at the same time. Furthermore, an optimum is seldom continuous—while regarding it on one day may lessen or correct the refraction this fact may not be true on succeeding days. It may be lost and later regained. The number of optimums discovered in each person is variable. It is well to know that the distance of the optimum from the patient is important, since an object which is an optimum at twenty feet may not be one at ten or thirty feet. Looking at an optimum is usually restful, but the patient may not be conscious of any relief. The vision may become normal for the object regarded, but generally, although no error of refraction is manifest by simultaneous retinoscopy, the vision is not normal. The following three cases illustrate these facts:

A man with myopia of 2 D. S. who had vision of 20/70 was able to see clearly the letter K on the fifteenth line and the letter K only on the fortieth line. When he regarded the letter K on the fifteenth line, by simultaneous retinoscopy he was not myopic, but when he regarded other letters on the same card he was myopic.

A woman, aged sixty years, with myopia of 18 D. S., was not myopic when she regarded a letter O on the tenth line at ten feet.

A child, aged four years, when he regarded the face of a stranger at ten feet, was myopic by simultaneous retinoscopy, but when he regarded the face of his mother, simultaneous retinoscopy indicated no myopia.

TREATMENT.

As a general rule it is best for the patient to discard glasses. In some cases of extreme myopia, where going without glasses entails too great a hardship, good results have been obtained by gradually reducing the strength of the glasses worn as the vision improves, but the treatment is then prolonged. The patient is told that all cases of uncomplicated myopia, hypermetropia, and astigmatism are caused by eccentric fixation and that central fixation is necessary for a cure. He is told the meaning of the terms used, and the symptoms of eccentric fixation manifest in his own case are demonstrated. Not only at the beginning of treatment, but also at frequent intervals, by constant repetition, by frequent demonstration, and by all means possible, the fact is impressed upon him again and again that perfect sight or a cure can be obtained only by relaxation or no strain whatever, which in turn can be obtained only by central fixation. Nothing else matters. The idea that the treatment demands effort is eliminated as much as possible. The fact is repeatedly emphasized that the exercises of the eyes are not work or effort, but rather that everything recommended is to secure physiological rest of the eyes, a condition which is found only with central fixation and perfect vision. Young children respond more promptly to the benefits of eye training than adults; not because their trouble may be more recent, which is not always true, but rather because they usually do as they are told and do not lose

time by useless experiments suggested by their own inclinations or by other persons.

Before central fixation and normal vision can be obtained, it is necessary to stop the twitching of the eyelids and the movements of the eyeball that result from the strain of eccentric fixation. One method which succeeds in a small proportion of cases is to

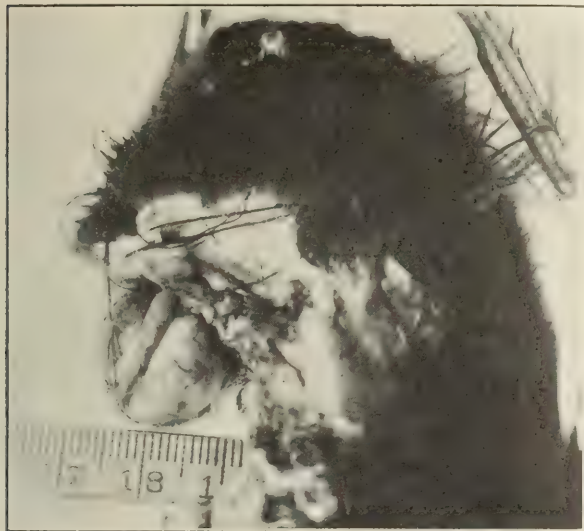


FIG. 3.—Rabbit with eyeball of normal length.

make the patient conscious of the movements. After regarding the Snellen test card with one or both eyes for a part of a minute, the eyes are closed, and when the closed eyelids are lightly touched by the patient with his fingers, he may frequently feel the movements. In some cases the strain, tension, or twitching is evident to the patient without touching the closed eyelids, or it may become apparent to him while the eyes are open when trying to read the Snellen card. Another method to stop the twitching and one which usually succeeds is to have the patient close the eyes and then press on the sides of the base of the nose as high as the inner canthus and also a little above it, with the forefingers of each hand, avoiding pressure on the eyeballs. The pressure may need to be applied continuously for some minutes or for a longer period. The value of the method should be emphasized. After it was repeatedly employed some well marked cases of nystagmus were observed to disappear for a longer or shorter time. Twitching of the eyelids and movements of the eyeball are always corrected by central fixation when regarding a distant letter at twenty feet or a small letter at twenty inches or nearer. It is well to bear in mind constantly that twitching of the muscles of the eyelids and movements of the eyeball always prevent central fixation for both near and far distances. In the beginning the use of the Snellen test card should be discontinued at frequent intervals in order that time may be given to stop the twitching.

The following procedures are recommended for obtaining central fixation: The patient is told to look at a light at twenty feet or greater distance, then to look a foot or further to one side of the light until it appears less bright. By practice and by increasing or lessening the distance of the point

fixed to one side, the patient may soon become convinced that the light is seen best by looking straight at it.

After central fixation is obtained for the light, the patient practises with the aid of the Snellen test card. The patient regards the top of a letter of the Snellen test card, a letter which is just barely distinguished or seen with some difficulty. If the bottom of the letter does not appear more indistinct than the top, the eye is not regarding the top of the letter by central fixation. The eyes are then to follow a pointer upward from the top of the letter until the bottom becomes more indistinct. This is repeated many times. After some practice, the patient will note that with the pointer a shorter distance above the top of the letter the bottom of the letter appears less distinct. Continued practice usually improves the ability to fixate so that the patient gradually becomes able, by looking directly at the top of a letter, to see it blacker or more distinct than other parts of the letter which are not fixed. The patient notes that after he becomes able to see the top better than the bottom, the whole letter is more distinct than in the beginning, when all parts appeared of the same shade of black. At first the letter may be seen by central fixation only occasionally. Later he may see it more frequently, until finally he becomes able to see a spot in the top of a letter better than the bottom of the same letter, and continuously. When one part of a letter is seen better than all other parts, the eyes are at rest, and most persons at once become conscious of the relief to the eyes after central fixation, and maximum vision is obtained. It is easier to obtain central fixation by regarding small rather than large letters and

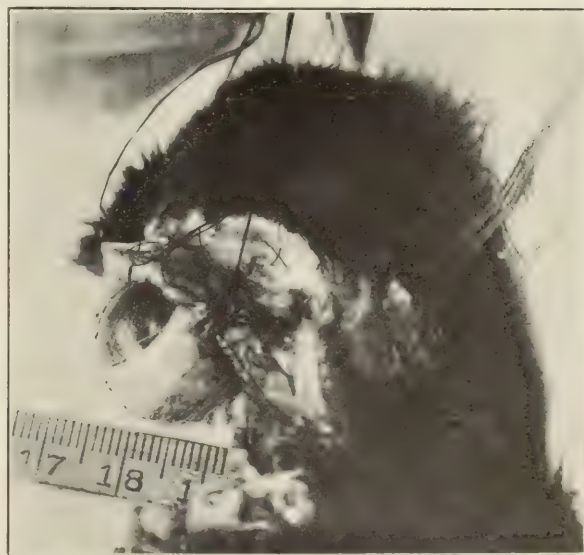


FIG. 4.—Same as Fig. 3, but with myopia produced by advancement of both obliques. Note that the eyeball is lengthened.

the patient should practise with the small letters on the tenth line at more than ten feet from his eyes.

It is usually difficult to obtain central fixation at a near point, e. g., less than twenty inches, than at a distant point, such as twenty feet. A dot of about the size of a pica type period on a blank card is regarded at twelve inches and its clearness is noted

with both eyes. The dot is then regarded with each eye separately. It is then held nearer and further off until the distance is found where it appears clearest with both eyes or with each eye separately. The patient, by practising in this way with the dot on the blank card, soon becomes able to see it quite clearly nearer and further than at the beginning. The patient is then given diamond type, Jaeger No. 1, to read. He is recommended to gaze at a period at a distance he can see it best with both eyes or each eye separately, and is told that when he sees it by central fixation the period will appear blacker than any part of a near letter and the part of the nearest letter closest to the period will appear as the blackest part of that or any other letter. The distance may be lessened to three inches and increased to twenty inches or more from the eyes by daily practice extending over many weeks or months. The ability to see one part of a small letter improves the vision for reading and affords a rest to the eyes. By alternately regarding diamond type by central fixation at the reading distance and the Snellen test card at twenty feet in the same way, the vision for near and far distance is improved. This method is usually successful in curing myopia, hypermetropia, and astigmatism.

Relapses usually occur unless the training of the eyes is continued daily for months or years after normal vision is obtained. It is necessary even for the normal eye to practise normal vision frequently, consciously or unconsciously, or some error of refraction is usually acquired. The normal eye always acquires myopic refraction when trying to see unfamiliar distant objects; while an effort to see near always produces hypermetropic refraction (Fig. 2). The liability of a patient to relapse should be emphasized or his disappointment is probable. The following cases illustrate the value of the treatment:

Compound hypermetropic astigmatism: A woman, aged thirty-seven years, had vision of 20/100, with convex 3.50 D. S. and convex 2 D. C. 90°; in each eye her vision was 20/30. She had worn glasses twenty years for the relief of defective vision, eye pain, headaches, and fatigue when reading. Her symptoms were not entirely relieved by her correction. After two months' treatment by education in central fixation for distance and near, her vision improved to 20/15 in each eye without glasses. She read Jaeger No. 1 at four inches and twenty inches. The subjective symptoms of headache, eye pain, and asthenopia disappeared. I believe that she will need to continue the eye training daily for a number of years to prevent a relapse.

Myopia, squint, and amblyopia: Man, aged twenty-four years, right vision 18/200, with concave 2.50 D. S. 18/15, left vision 18/100; glasses caused no improvement; with both eyes open, the left eye turned in, which is an unusual condition; convergent squint, the fixing or straight eye being myopic with less vision, while the amblyopic, emmetropic eye converged, although the vision was better. The use of atropine sulphate one per cent., instilled three times a day for a week did not alter the refraction or improve the squint or vision. Eye training by the methods suggested above was followed by relief in one month, when the vision became normal in both eyes, without glasses and the eyes became straight with binocular single vision. The patient was advised to continue the use of the Snellen card daily for some years to prevent a relapse.

Presbyopia. Since the lens is not a factor in the production of accommodation, the theory that presbyopia is caused by a hardening of the lens is not true. In patients over fifty years old with normal eyes, hypermetropia or other errors of refrac-

tion are curable. The cure of presbyopia is accomplished by eye training which secures central fixation. The patients are taught to regard the letters of the Snellen test card, the smaller letters first at ten or twenty feet, in such a way that they see a small part of each letter blacker or more distinct than the rest of the letter. After normal vision is obtained for distance, the eye training is continued for small letters at the reading distance. A period or comma is selected. The patient regards a letter near the period or looks further away until he can appreciate that the period is less black or worse. He then regards a letter nearer the period. The distance from the period is shortened, until by practice the patient can make the period appear less black by regarding a point but a very short distance away, the diameter of a small letter. He can now read the print. Then he is encouraged to practise holding the fine print closer to his eyes until he can read at four inches Jaeger No. 1. Some patients are relieved in a few days. Permanent relief is never obtained, without constant or daily practice, reading diamond type without glasses at four inches to twenty inches. Patients sixty, seventy, and eighty years of age have obtained relief in a short time. The efficiency of the eye is very much increased, and one reads more rapidly than with glasses and without pain or fatigue.

The prognosis in acute cases where glasses have never been worn or in cases not relieved of every discomfort by the aid of glasses, is favorable, and a cure is usually obtained in a reasonable length of time, such as a few weeks or months. In one case convex 2 D. S. and concave 5 D. C., 180°, in each eye under atropine, the patient obtained normal vision for distance by training of the eyes, and simultaneous retinoscopy revealed then no error of refraction. It was an interesting fact to me that in this case the eyes became normal, although atropine was instilled in the conjunctival sac three times daily. How could the hypermetropia disappear under atropine? The animal experiments answer this question satisfactorily to me, for it was learned from them that atropine, when injected deeply into the orbit, prevents the production of hypermetropic and myopic refraction by electrical stimulation. Other cases could be cited. In general, all errors of refraction are benefited promptly. When the optimum is found, the problem is to teach the patient to make all objects an optimum. Until this has been accomplished no case has ever been permanently cured.

SUMMARY.

Animal experiments demonstrate:

1. The lens is not a factor in the production of accommodation;
2. Hypermetropic refraction is always produced by a strain of two or more of the recti by electrical stimulation or advancement, and is always prevented by relaxation of these muscles by tenotomy;
3. Myopic refraction is always produced by a strain of two obliques and is always prevented by relaxation of these muscles by tenotomy;
4. Atropine prevents, when injected deep into the orbit, the experimental production of errors of refraction;
5. The cause of all errors of refraction is a strain

to see. The cure is accomplished by relaxation. Relaxation is secured by central fixation.

The subjective symptoms of central fixation include the ability to see one part of a letter or other object better than the rest of it; maximum vision is thus obtained and the eyes feel at rest. The objective symptoms indicate no error of refraction by simultaneous retinoscopy and no corneal astigmatism by the use of the ophthalmometer, while the optic axes are parallel, with no squint or muscular insufficiencies (heterophoria).

The subjective symptoms of eccentric fixation include the ability to see letters or parts of letters better outside the point regarded; the vision is always defective; monocular polyopia is frequent; and pain and fatigue are usually felt. The objective symptoms always indicate an error of refraction by simultaneous retinoscopy, usually some corneal astigmatism by the use of the ophthalmometer; the optic axes are seldom parallel, squint heterophoria, or muscular insufficiencies being present.

The refraction of newborn children is not always permanent. All errors of refraction are produced by muscular action and are usually acquired.

Observations of the lensless human eye indicate that the absence of the lens does not prevent the production of errors of refraction by a strain of the extrinsic muscles.

The optimum is a letter or some other object which can be regarded with a minimum of strain, and when looking at such an object the patient has no error of refraction by simultaneous retinoscopy.

In treatment, discard glasses as soon as possible. Educate the patient in the fundamentals. To stop twitching of the eyelids by pressure on the sides of the base of the nose is important. Central fixation is obtained by eye training with the aid of the Snellen test card at twenty feet and by alternately practising central fixation with a dot or a fine point at twenty inches or nearer.

The results are good. After central fixation is obtained, all errors of refraction are cured.

40 EAST FORTY-FIRST STREET.

URINARY LITHIASIS.*

Reports of Cases from the Author's Clinic during 1914.

By VICTOR COX PEDERSEN, A. M., M. D., F. A. C. S.,
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Each of the following cases of urinary lithiasis, examined and treated during the year 1914 at the author's Clinic in Urology for Men, Women, and Children, at St. Mark's Hospital, has particular features somewhat different from those of its fellow cases and, therefore, possesses considerable interest.

CASE I (10634). M. de L., first seen January 6, 1914; single; musician; aged sixteen years. Diagnosis: Multiple vesical calculi. Family history, negative for syphilis, cancer, tuberculosis, or lithiasis. Past personal history: Denied intercourse and venereal disease. Present personal history: As far back as he can remember, suffered pain along the urethra during and after micturition, increased by exertion

and walking. Blood in the urine had been seen on several occasions, and sand was passed about two years previous to his first call. Diurnal urination increased in frequency and nocturnal calls two or three in number. During urination stream suddenly stopped with acute pain and after effort resumed. Urinary examination: January 8th, cloudy, specific gravity 1017, hyperacid, no albumin, urea 1.8 per cent, no red blood cells, few pus cells, large number of calcium oxalate crystals, and a few flat epithelial cells. General physical examination: Negative. Exploration of the urethra revealed a very small meatus through which the cystoscope could not be passed. After much persuasion a meatotomy was submitted to, and cystoscopy performed, January 27, 1914, which revealed in a practically normal bladder three gray calculi, about the size of a boy's marbles, almost in a straight line back of the interureteric fold and rather more on the left than the right side. They were, therefore, in the typical position in the subperitoneal quadrant of the bladder. The patient doubted this diagnosis, but agreed to accept it if an x ray photograph corroborated the findings. This was done on January 29th, and three large calculi were shown in a row exactly as described, together with ten or twelve other shadows also suggesting smaller stones. There was no evidence of calculi in the ureter or kidney of either side. The findings of the cystoscope, the operation, and the subsequent course of the case all proved that these additional shadows must have been outside the urinary apparatus. The bottle marked "No. 1" in Fig. 6, shows the products of these stones at the time of the operation. Very little of the sand and fragments were lost because the irrigating fluid was passed through a towel, from whose surface the pieces were carefully taken.

Operation, January 30, 1914, litholopaxy with the Chismore lithotrite and evacuators, under ether, without difficulty or incident and with uneventful recovery. Discharged February 1, 1914. Present condition: This patient was seen again and cystoscoped on February 27, 1915, and found to be entirely free from subjective or objective signs of recurrence. He was carefully told to report for observation several times a year, and to follow bland and simple diet and abstinence from alcohol which in his case is important because of his Italian birth and habits of life.

The features of this case are the three stones, the long history, the youth of the patient, the comparatively little disturbance of the bladder, due, perhaps, to the round and smooth surfaces of the calculi, and to the absence of deformity or disease in the bladder. Recovery, therefore, without permanent lesion of the viscus, is inevitable, but the foregoing precautions against the formation of other stones must be followed.

CASE II (53,078). M. K., referred by Dr. Benjamin T. Tilton, first seen, October 31, 1914, married, one child; tailor; aged twenty-two years. Family history, negative for any chronic disease. Past history, chicken pox during infancy, otherwise surgically and medically negative, except for gonorrhea three years ago, of which he said he was cured. Appetite and bowels normal. Married one year ago, one healthy child. Present history: During August, 1914, was suddenly seized with colicky pain, acute, always over right lumbar and inguinal regions, which radiated to the penis, associated with vomiting, chills, and sweats. Physician ordered hot packs and within twenty-four hours gave relief. Had a similar attack in September, several in October. Last week patient had three similar attacks (acute radiating pain, vomiting, chills, and sweats) painful micturition. No blood in urine. Frequent urination in small quantities. No jaundice. Urinary examination, November 2, 1914, specific gravity 1025, acid, cloudy, heavy trace of albumin, no casts, no pus, large number of red blood cells, also epithelium from the ureters and kidneys.

An x ray photograph was taken in Case II October 12, 1914, by Bendiner and Schlesinger, for Dr. Solomon Ganz (Fig. 2). The arrow points to a shadow just below the sacroiliac synchondrosis on the right side. Its position illustrates the fact that stone in the higher part of the pelvic portion of the

*Read before the genitourinary section of the New York Academy of Medicine, April 21, 1915.

ureter tends to correspond more or less with the position of this joint. On November 10, 1914, another x ray photograph (Fig. 3) was taken for the author by Dr. Byron C. Darling, and shows the stone migrated downward to the position of the coccyx in an imaginary line between the two spines of the ischia. The position of the stone tends further to emphasize



FIG. 1.—Three stones side by side, practically in the line connecting the two spines and the ischium, and close to the shadow of the coccyx.

the findings published by me in the *Transactions of the American Urological Association* for 1913 and 1914, proving that the position of the shadow of a stone in the bladder in just behind the ureteric folds which is sufficiently accurately marked out by the interspinous line of the ischia. From this it follows that the shadow of a stone at the outlet of the ureters must be at the same position as in this case. Doctor Darling's comment on this photograph was: A shadow to the right of the first segment of the coccyx. Stereoptically, it is impossible to say that the shadow of the possible calculus is not in the vicinity of the bladder or ureter. Conclusion: Possible calculus at the lower end of the ureter.

Two cystoscopies were performed, the first by the family physician on November 2nd, under general anesthesia, with negative findings so far as the outlets of the ureters and the bladder were concerned. There was considerable bleeding, so that a definite diagnosis could not be established, but the suggested conclusion was either a stone at the mouth of the right ureter or an ulcer. The day before the cystoscopy, the temperature rose from 99° to 103.2° F. by rectum, but after the cystoscopy, came down and remained normal. Patient received hexamethylenamine and sandalwood oil at standard doses and frequency. On November 10th, the patient was cystoscoped at the office of Dr. Byron C. Darling and the x ray already described taken. The bladder as a whole was negative, but the region wide of the right ureter was deeply edematous, congested, and even hemorrhagic, and at the point where the

ureter should be, was a shaggy grayish mass with a distinct pulsation. Both ureteral catheters were advanced against this mass. While one was used to steady it, the other was pressed against it in a futile attempt at dislodgment, and at penetration of the ureter beside it. The pulsation, shagginess, fixity, and blackish gray color made the writer think of a cystoscopic burn of the floor of the bladder, inasmuch as no such lesion had been found by the family doctor during his cystoscopy. The x ray shadow, however, proved a stone to be the basis of this very unusual reaction. The element of the pulsation of the mass is spoken of hereinafter.

Operation, November 12, 1914, under ether. Preparations were made for removal of the stone from the mouth of the ureter with the operation cystoscope or for crushing of the stone by the Chismore method, but the stone was found at the meatus of the urethra, where it was readily fragmented under the pressure of a rubber catheter and was removed. Specimen 3, in Fig. 6, shows the fragments saved. The strange thing to note is that after recovery from the ether the patient could recall no colicky pain typical of delivery of the stone from the ureter into the bladder, and no urethral pain accompanying its transit to the narrow meatus.

This patient was last seen, February 8, 1915, and a cystoscopy performed which was negative in every respect, except for a rather prominent laceration of the right ureter and more or less infolding of the lips of its outlet. A curious phenomenon was a generalized pulsation around the right ureter, which must have depended on anomalous blood supply and have been the cause of the pulsation of the stone

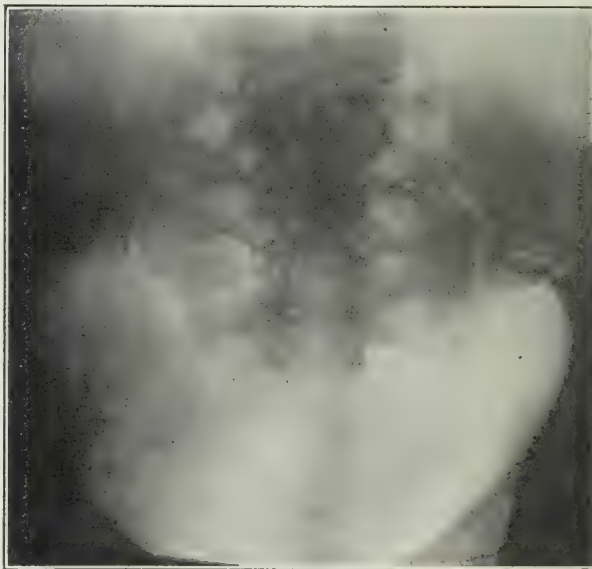


FIG. 2.—Shadow of stone indicated by arrow on the right side just below the sacroiliac synchondrosis.

noted in the cystoscopy of the author on November 10th.

This patient has been referred back to his physician with directions to report every three or four months to him for uranalysis and general examination, and to follow the plan of light diet and moderate water drinking, without alcohol.

The features of this case are, therefore, the in-

cidental observance of the transit of the stone from nearly the pelvic brim to the mouth of the ureter, the severe almost sloughing condition of this outlet during the actual delivery of the stone, the absence of ureteral and urethral colic during the final stages of transit, the absence of classic bladder symptoms due to the stone within its cavity, and



FIG. 3.—Faint shadows of stone (S) at the base of the coccyx on the right side.

finally pulsation of the bladder floor during and after the exit of the stone from the ureter.

CASE III (53,090). M. G., aged fifty-eight years; admitted to the hospital November 3, 1914; married; tailor. Diagnosis, vesical lithiasis secondary to ureteral lithiasis. Family history: Father died at fifty, and mother at forty-seven years of age, both of unknown causes; otherwise negative for cancer, syphilis, tuberculosis, or lithiasis. Past history, medically and surgically negative; no alcoholic or tobacco habits. Marital history embraced thirty-seven years, wife and daughter living and well. Venereal disease in any aspect denied. Present history dated back thirty-seven years when patient began to suffer urgent and frequent micturition. In voiding he had noticed particles of sand in the urine and within the past few weeks great urgency to void, but the attempt required a half hour for only a small quantity and caused severe pain. Voided every fifteen minutes by day and got up a "dozen" times at night. No blood, no chills, no paroxysmal vesical pain. Had had severe paroxysmal pain over the left lumbar region which passed down toward the thigh, came on suddenly and acutely, lasted a few minutes, and was relieved by hypodermic injections of morphine. These attacks recurred at least monthly. This patient was for nearly a year in attendance at the outpatient department in the author's clinic where a cystoscopy and ureteral catheterization and kidney function tests were all negative. The patient was told to return every two or four weeks, especially during even trivial symptoms, for observation. When he came in November, it was after a definite attack, and a cystoscopy then done showed a ureteral calculus in a nearly normal bladder, but too large to remove with the operation cystoscope. The only factors in the bladder were slight deformity and trabeculation due to the first degree of prostatic hypertrophy without obstruction. Urinalysis, November 3, 1914. Specific gravity 1026, red, cloudy, moderate trace of albumin, positive blood cells, many pus cells, and a few epithelial cells from the bladder.

Operation, November 4, 1914, litholopaxy by the Chismore method, under ether anesthesia. November 6, 1914, fragments of stone removed from the bladder washings with the Chismore evacuator. Ordinary vesical irrigation

November 8th and 9th, on account of symptoms which persisted, which, by cystoscopy on November 10th, were found to be due to a flat fragment of the stone caught within the trabeculations. November 14th, under ether the Chismore crushing and evacuating operation was repeated and the offending piece recovered. Discharged, November 17th, after uneventful convalescence. Present condition: Reported late in December and a cystoscopy was done with normal findings, except the deformity of the bladder already noted. The aftercare of this man included also directions to return to the author's clinic for observation several times a year and to cling to light, simple diet, no alcohol and reasonably free water drinking. Bottle 2, Fig. 6, shows the products of the litholopaxy.

The interest in this case rests on the long history, the frequent attacks of mild colic, the passage of the ureteral catheter beyond the stone during the functional test for the kidneys, the subsequent automatic delivery of the stone into the bladder without great disturbance of the patient, and the catching of a large flat fragment among the trabeculations.

The feature of the following case is that two well marked stones in the left kidney were well borne, with little disturbance to the organ and its function, and that one of the stones was turned on its axis by the passage of the x ray ureteral catheter beyond it.

CASE IV (53,254). A. H., aged thirty-seven years, admitted to the hospital December 1, 1914; married; four children; housewife. Diagnosis: Multiple renal calculi. Family history, negative. No cases of chronic disease in the family. Past history: Measles at two years of age; medical, surgical, and venereal histories negative. Appetite poor, bowels irregular. Menstrual history began at



FIG. 4.—Bismuth catheter advanced into the left renal pelvis as far as it will go, and in passing the larger calculus, turned slightly on its axis.

fourteenth year, regular three or four day type, moderate flow with pain during the first day. Last period, two weeks before admission. Marital history, married at nineteen and had had four children. About nine months ago began to have severe pain in the left loin which continued for three or four months. Onset of attacks accompanied by vomiting for four days, of everything ingested. During the entire illness she felt chilly and had now a persistent dull pain on the left side and at irregular periods

and pain became very severe and stopped only with the aid of opiates. During the attack she urinated ten or fifteen times during the day and three or four times during the night. She had marked ardor urinæ. No blood in the urine, but cloudiness and sometimes gravel. Since the onset of this illness her menses had changed to the four day from the six day type and the flow was scanty. X ray taken November 24, 1914, by Dr. Byron C. Darling, was reported as follows: "X ray examination shows large cal-

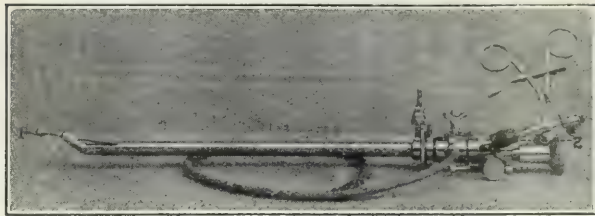


FIG. 5.—Operation cystoscope and forceps with the stone in the jaws at No. 1. The instruments were withdrawn in the relation shown. No. 2 shows the hub of the forceps close to the rubber washer in order to project the jaws beyond the lamp and to permit withdrawal. If this relation is not kept, the stone invariably leaves the jaws and stays in the bladder.

culus, about $\frac{3}{4}$ " by $\frac{1}{4}$ ", and a smaller one $\frac{1}{4}$ " in diameter, situated at the end of the opaque catheter, evidently in the pelvis of the left kidney. There are two or three smaller shadows not definite, but suggesting smaller calculi. The catheter, when pushed to the upper calyx, seems to show that the upper calculus with its long axis has shifted." (Fig. 4.)

Before the penetration of the x ray catheter to this limit, the long axis of the larger stone was almost horizontal so that the change in its position would be fifteen or more degrees. Brevity does not permit publication of the radiograph showing the stone in this undisturbed position.

In order to be doubly sure that there were no other calculi in the ureters, an x ray photograph was taken with both ureteral catheters in position. Space prevented the publication of it, but it showed with remarkable clearness the normal relation of the ureters to each other, and the skeleton and no shadows of any kind in relation with them.

Urinary examination, in the hospital, December 2, 1914, showed specific gravity to be 1012; acid, cloudy, trace of albumin, no blood or casts, and few pus and epithelial cells. The general condition of this patient was that of a tenement house dweller, anemic and out of condition. She was referred to the clinic of the author from his office after about two months of observation there. In this period several cystoscopes were done with negative findings, in that the bladder was normal and the function and urine of each ureter practically alike. Analysis of a casual mixed or bladder specimen was done October 29th and was turbid, specific gravity 1021, alkaline (probably after standing), no albumin, no sugar, normal urea, no concretions, red blood cells, nor pus cells. The sediment was thick with crystalline and amorphous phosphates. No urates, uric acid, or calcium oxalate. A few scattered hyaline casts, and squamous vesical and vaginal cells were present. On November 6, 1914, a renal functional test was done with the following results. In fifteen minutes the right or normal kidney excreted 19 c. c. and the left kidney 24 c. c. each with the following characteristics:

	Right Kidney.	Left Kidney.
Volume	19 c. c.	24 c. c.
Appearance	Slightly turbid	Slightly turbid
Specific gravity at 15° C.....	1012	1006
Reaction	Acid normal	Acid normal
Indican	Normal	Normal
Albumin	None	None
Sugar	None	None
Red blood cells.....	Frequent	Scattered
Pus cells	Scattered	Frequent
Crystals (phosphates, urates, uric acid, calcioxal)	None	None
True and false casts.....	None	None
Tubercle bacilli	None	None

After securing the foregoing specimens for analysis the phenosulphonephthalein test was done during a period of thirty minutes with the following results:

	Right Kidney.	Left Kidney.
Volume	85 c. c.	60 c. c.
Specific gravity	1026	1020
Excretion of dye.....	36 per cent.	28 per cent.

Leakage into the bladder during the same period of thirty minutes was 150 c. c., specific gravity 1020, and dye 25 per cent. There was, therefore, very little difference between the two kidneys, so that each might be regarded as an efficient organ for so brief a period of test and the combined excretion at 89 per cent. as unusually high. While under care as a private patient, she had at least two so called attacks of colic, during one of which she was seen in her home in Harlem, while confined to bed, by my associate, Dr. Henry Eichel, who was sent there as soon as possible in order to elicit whether the pain was intestinal or renal. This was, of course, before the x ray photograph had been taken. Strange to say, that although vomiting, prostration and shock were complained of, she showed no objective sign of renal colic in the form of changes in pulse, respiration, temperature, and abdominal

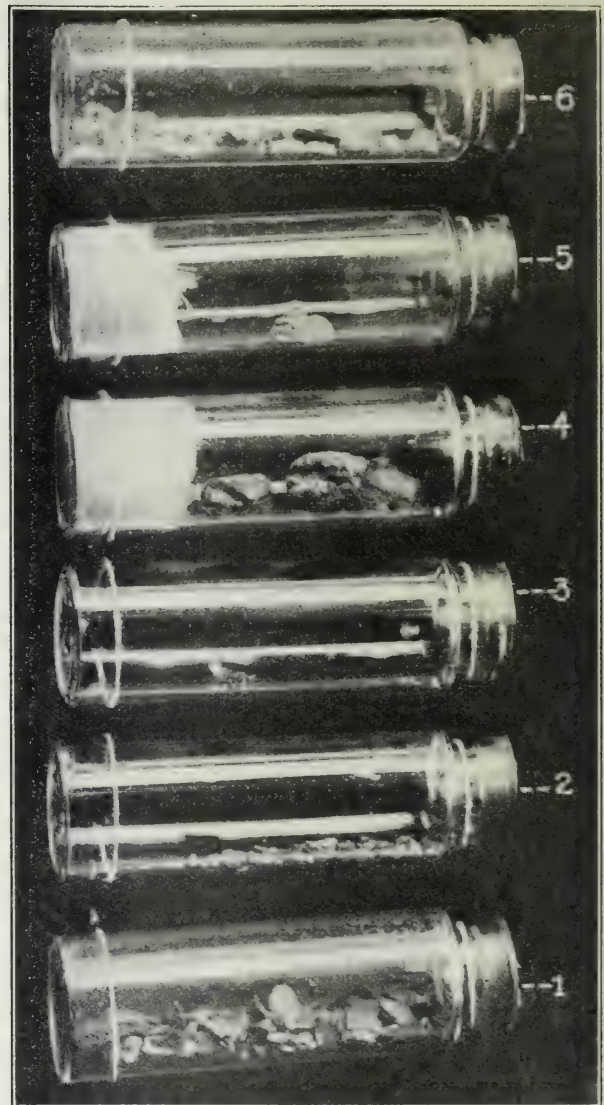


FIG. 6.—Specimens of stone from the cases reported as noted in each.

rigidity. The statement of pain, however, induced the author to have the x ray photograph taken with the foregoing results.

Operation, December 3, 1914, nephrotomy for lithiasis: Two stones were found in the pelvis of the kidney after the organ was split almost from end to end, while the pedicle was held in the grasp of the consulting assistant, Dr. Benjamin T. Tilton. The most careful possible palpation failed to reveal any other stone as suggested by the smaller shadows alluded to in the report of Doctor Darling, but a hardened tip of one mamillary process was snipped off with an adenoid forceps. The patient was re-

turned to bed in fair condition. During the first three days of convalescence she was very ill, chiefly from tossing herself about the bed and insisting on seeing her relatives. This mental rebellion combined with her anemia resulted in profound depression, from which she finally and fully rallied. She was discharged from the hospital, December 20, 1914, with a small sinus, which healed promptly under the usual dressings in the author's outpatient clinic.

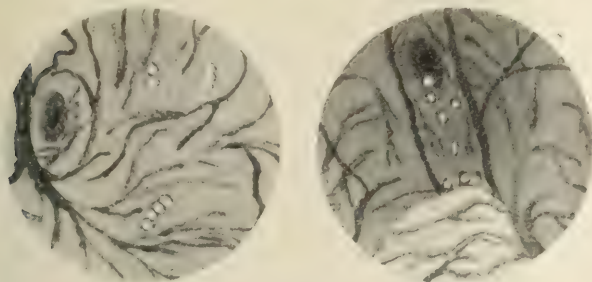


FIG. 7.—The left field shows the right ureter with many of the calculi clinging to the bladder wall and the right field illustrates the stones dropping from the left ureter toward the enlarged prostate below.

The aftercare of this patient will be the same as that of similar cases in prescribing suitable diet, water drinking, and medication. It is particularly important to see that her anemia and depreciated health are permanently overcome, if this can be brought about against the obstacles of her unfavorable surroundings and hard life as a tenement house dweller.

The peculiarities of this case are the brief history, the severe subjective symptoms which probably were not exaggerated, the slight objective symptoms, the displaceable large stone under passage of the ureteral catheter, and finally the intense and even dangerous results of the fear, rebellion, and jactitation in bed during the first three days of convalescence.

CASE V (53,299). M. P., aged thirty-six years, referred by Dr. M. Marion Apfel, of Brooklyn, single; cutter; admitted December 10, 1914. Provisional diagnosis: Early neoplasm of the bladder; final diagnosis: Vesical calculus. Family history: Father died at the age of thirty-four years, of pneumonia; mother, two brothers, and two sisters living and well. No chronic diseases in the family. Personal history: Medically and surgically negative; appetite good, bowels, constipated; no alcoholic or other habits. Venereal history denied. Married eleven years, wife fifty-four years old, several children living and well. Present history: For three weeks previous to admission, the patient had been suffering from urgency and frequency of urination, every fifteen to thirty minutes, with burning pain before, during, and after voiding. No blood or gravel in the urine. No vomiting. Had had occasional chills and sweats following acute pain when voiding. No loss in weight. No definite history of renal or ureteral colic. Examination of urine: Specific gravity 1017, acid, slight trace of albumin, no sugar, no casts, many pus cells, red blood cells, and flat epithelia. Cystoscopy and operation: The examination cystoscope was passed for diagnosis, which was very easy in the determination of a small ureteral calculus about the size of the pit of an olive, lying almost transversely in the deep fundus behind and between the ureters and therefore in the subperitoneal quadrant. Bladder normal, except for slight signs of irritation. Removal of the stone with the aid of the operation cystoscope was immediately decided on after the manner of Buerger.¹ The sheath of the cystoscope was therefore inserted after the usual manner, the bladder fully distended, the obturator withdrawn, and outflow from the bladder prevented by the thumb over the end of the sheath. The intravesical forceps mounted on the telescope as shown in the foregoing article quoted were then passed so that the jaws preceded the lens. When every other usual detail was in readiness, the forceps were ad-

vanced to the stone, opened, and closed upon it as firmly as possible without risk of breaking the jaws, and then the cystoscope was withdrawn, bringing with it the stone in the grasp of the forceps (Fig. 8).

Uninterrupted convalescence followed and discharge on December 12th, the day after the operation. On February 6, 1915, the patient was again cystoscoped and the bladder found to be normal. One could not be certain from which ureter the stone had proceeded. Bottle 5, Fig. 6, shows the stone recovered.

There is no difference in the subsequent treatment of this case and those of the preceding cases as already noted in the matters of diet, medication, and management, for which he has been referred back to his family physician, Doctor Apfel.

We note in this case the brevity of the history, the apparent absence of any ureteral symptoms, the prominence of the vesical signs, the ease of removal with the operation cystoscope and rongeur, and the insignificant result of such an operation on the bladder, urethra, and patient.

CASE VI (146,142, O. P. D.). A. T., aged seventy-seven years, first seen November 6, 1914, no occupation. Diagnosis: Eczema of the lip. Family and past personal history, not well taken and uncertain, and patient refused to call at the clinic of the author after letters of invitation for this purpose. Present history: For many years had had eczema of the upper lip. Examination of the nasal



FIG. 8.—Round shadow of stone clearly shown as described in the report of radiographer, Dr. Byron C. Darling, just above the transverse process of the third lumbar vertebra.

cavity, negative for source of the eczema, which was treated on standard lines of diet, digestive aids, intestinal antiseptics, alkalies, and ointment. Urinalysis, November 9th, showed abundance of sugar, and cystoscopy, November 14th, revealed a trabeculated bladder with normal mucosa associated with a generalized enlargement of the prostate in the early and nonobstructive stages. A very peculiar feature consisted in numerous small round granules, apparently of phosphatic calculi, which rolled about the bladder under the movements of respiration and the influx or outflow of irrigating fluid. They were for the

¹Leo Buerger, *Transactions of the American Urological Association*, vii, 1913, pp. 133-160.

most part one mm. or less in diameter, of grayish white color and smooth surface, and without obvious irritation of the mucosa. Two such minute calculi were seen to roll out of the meatus of the left ureter. Several of them were shown to the pathologist of St. Marks's Hospital, Doctor Callison, who pronounced them to be calculi, but did not determine their exact chemical nature. On November 30, 1914, and on January 12, 1915, uranalyses showed little influence upon the sugar in the urine of the diet and medication directed against the diabetes. Another cystoscopy and functional test of the kidneys was done, December 17, 1914, with the same findings as to the calculi which amounted to at least thirty by count on the floor of the bladder, and on this occasion were seen rolling from the right ureter, into which the ureteral catheter was admitted only five cm. but fifteen cm. into the left. The patulousness of the right ureter defeated this attempt at a kidney function test, and the patient disappeared from treatment and refused to return before it could be repeated in January. He had developed a suppuration around the hair follicles of his moustache in the eczema of his lip and seemed to have taken offense at the fact that the hair was pulled out in the effort to control the pus quickly, in the unreasonable manner that charity patients so often show. (Fig. 7 shows the minute calculi very well and was drawn by Dr. Simon Grudberg, of the staff of the clinic, to whom the author is indebted and to whom grateful acknowledgment is hereby tendered.)

The presence of these calculi in the bladder suggested the possibility of a definite subjective element of renal calculus or gravel in the history. Further inquiry resulted as follows. For a year previous to his calls at the clinic, he had had pain in the right side of the abdomen just below the free border of the ribs, formerly radiating to the back. Urination has been increased in frequency by day and by night; there was no blood, but considerable turbidity in the urine. He never vomited, but the pain has at times radiated into his right lower extremity. For the last year he had pronounced ardor urinæ, also with pain radiating toward his right lower extremity. Seven years ago he was operated on for gallstones, but has never seen gravel in his urine or been aware in any way of its presence directly. His mouth feels dry, but he does not drink fluids to excess. At the end of urination his bladder feels empty and tenesmus has not been present. The question as to the origin of these minute calculi or gravel and as to their influence on either or both kidneys cannot be settled until he returns to the clinic for treatment. At the moment, the patient seems to be producing them in large numbers with little or no result on any part of his urinary system, inasmuch as analyses show either absence or a trace of albumin, microscopically nothing pathologically important, and acid reaction. Sugar is the only element of disease. If this patient ever turns up again and a decision is reached it will be published.

CASE VII (53,362). M. K., aged forty-nine years, referred by Dr. Frank J. Horn. First seen December 23, 1914. Married; no children; laborer. Provisional diagnosis, hematuria, final diagnosis, vesical lithiasis with hematuria. Family history: Father died at the age of fifty-five years of cancer of the bladder, and mother at the age of fifty of cancer of the stomach. Two sisters living and well, otherwise negative as to chronic diseases. Past personal history: Diphtheria when five years old, smallpox at unknown age. Operated on four months ago at one of the large hospitals of this city for left nephrolithiasis, of which the full records are given hereinafter. Venereal history in any form denied. Habits good, appetite good, regular bowels, little alcohol. Present history: For the previous six weeks patient had had great frequency and urgency of urination with bleeding. Voided about ten times during the day and about five times during the night. Had acute severe stick-

ing pain in the urethra while voiding and saw blood on several occasions mixed with the urine. Stream would stop suddenly with great pain and then resume. Urinalysis: Specific gravity 1012, acid, trace of albumin, few red blood cells, no casts, numerous pus cells, and few flat epithelial casts. Cystoscopy was performed at his first call at the clinic, and a stone made out of irregular form, conical rather than ovoid, situated in the retroprostatic pouch of the bladder, that is, in the subperitoneal quadrant, in the midst of a distinct but mild cystitis. Litholopaxy recommended. This was carried out under ether on the day of admission and the patient was discharged the following day in good condition. The patient remained under observation in the clinic preliminary to the final cystoscopy, and his bladder was washed clean with the Chismore evacuator about one week after his discharge. A very peculiar circumstance arose in that, perhaps from the influence of the ether, or perhaps from some unknown cause, jaundice developed of as profound degree as is ever seen. For the treatment of this he was referred back to his family physician, in whose hands he remained until its slow subsidence, when he disappeared. Thus the final cystoscopy was not done until March, and resulted in normal findings. Bottle 6, Fig. 6, contains the products of the crushed stone washed from the bladder.

This patient has been directed to report to his family physician every three or four months, especially at any sign whatever of renal or vesical disturbance; his record as the victim of left nephrolithiasis, is given through the courtesy of the other hospital in the following terms:

M. K., August 12, 1914. Pulmonary tuberculosis. Complicated with tuberculosis of kidney. Chief complaint, pain in left lumbar region. Present illness: Four days ago patient was taken with sharp stabbing pain in left lumbar region. Pain did not radiate, had no reference to meals, lasted but a few minutes, and was relieved by an enema. Had no chills nor fever. No pain on urination, though he noticed a reddish discoloration of his urine, but did not recall whether it was before or after the attack. Consulted a physician who advised x ray. Lost some weight. Appetite fair. Had a heavy cough with pain in the left chest and profuse expectoration. Past history: Similar attack one year ago. Had been examined and treated twice by board of health for tuberculosis. Had always been sickly. Family history: Mother died of cancer. One brother died of tuberculous laryngitis. August 14th: Four days ago patient left New York Hospital, where he had been treated for kidney trouble. Ever since patient noticed that his urine was much darker in color. Operation: Left kidney delivered into wound, looked and felt normal, pelvis opened, wall slightly thickened. Probe run through ureter into bladder, no obstruction. Capsule of kidney stripped for about one square inch and brought over suture line in pelvis. Wound healed with primary union. Urine still contained pus when he left.

The x ray plates in this case were so uncertain that reproduction would have been unsatisfactory. One might comment, as to the former operation, on the fact that it would have been well to do a cystoscopy, on the ground that the pain, while not absolutely typical of ureteral calculus, was not, on the other hand, adequately explained as due to other cause. The author is of the opinion that abdominal pain which cannot be absolutely settled as to origin, warrants a cystoscopic examination with suitable exploration of the ureters and kidneys, and an x ray examination. The specimen (Fig. 6, No. 6) contained a uric acid centre in a phosphatic envelope. It is probable that a uric acid stone of small size had either passed into the bladder during the paroxysms of pain, or had been pushed into the bladder at the time of the operation. A cystoscopy would have settled its presence and have permitted its removal.

CASE VIII (51,763). M. McC., aged thirty-eight years, referred by Dr. J. D. Sullivan and Dr. Benjamin T. Tilton, admitted April 21, 1914. Married; three children; machinist. Family history negative as to chronic diseases. Personal history: Denied any of the exanthemata of childhood. Had an attack of appendicitis four years ago with medical treatment. Appetite good, bowels constipated, no alcohol, moderate tobacco user. Denied gonococcal and syphilitic infection. Present history: For the past two years, had been suffering with attacks of pain in the right iliac fossa. The pain was sticking and sometimes dragging in character, radiated to the back, and sometimes down the ureter into the scrotum and penis to its tip, and even down the thigh of that side. When the pain was very severe he was nauseated but did not vomit. Urination excited the pain at times which was then apt to radiate down to the glans penis. Between the paroxysms of pain relief was absolute. Blood count on admission: Hemoglobin 90 per cent., red blood cells 4,300,000, white blood cells 9,000, polynuclears 70 per cent., lymphocytes 25 per cent., mononuclears 5 per cent., temperature 98.6° F., pulse 80, respiration 24. Urinalysis, April 2, 1914, specific gravity 1020, acid, dark amber in color, cloudy, small amount of albumin, no sugar, strongly positive blood test, no casts, many red blood cells, few pus cells, few bladder cells. X ray examination, April 5, 1914, showed a calculus, one quarter inch in diameter, either in the kidney, in the pelvis of the kidney, or in the ureter, at the origin of the latter just above the transverse process of the third lumbar vertebra. No other stones seen in the genitourinary tract.

Operation, April 9, 1914, by Dr. Benjamin T. Tilton, with the assistance of the author, for calculus in the pelvis of the right kidney. The usual technic was followed, the stone easily reached and removed. No other stones encountered. Cigarette drains inserted. Returned to the ward in good condition, voided six ounces of urine naturally, about twenty-four hours after the operation. Discharged, April 26, 1914, having made an excellent and uneventful recovery. This patient lived out of town and could not be reached conveniently for a final cystoscopy. No cystoscopy was done prior to the operation, as the x ray findings were positive and unmistakable.

The aftercare of this patient will not be easy to follow or control owing to his residence in the country. It is, therefore, somewhat more likely that other stones will form soon. The specimen in this case was not preserved and, is, therefore, omitted from Fig. 6.

The most important remark to make in connection with this case is that perhaps the omission of cystoscopy and ureteral catheterization was in a certain sense a mistake, because it is possible that such an exploration might have revealed the possibility of dilating the isthmus of the ureter so that the stone could pass with the aid of olive oil and without the need of a major operation. It is well to note that, in general, it is better to use the x ray in case of suspected renal disease more or less in conjunction with x ray ureteral catheters. This step accomplishes two things at one sitting: First, the relation of shadows of supposed stones to those of the x ray catheters, and the permeability of the ureters to catheters of ordinary calibre; and, second, the usual tests for comparison of the urine from the two sides and of the kidney function of the normal and diseased organ.

Each of these cases presents a slightly different element of interest, and while none is a case of special pathological or surgical importance, the whole series shows a variety worthy of record.

The author desires to acknowledge his obligations to the members of his staff in the care of these patients, notably to Dr. Walter B. Brouner, Dr. Alexander Alexion, and Dr. Joseph Kaufman, as chiefs of the several subdivisions of the clinic, and to the

members of the house staff, in particular Dr. Philip Goldfader, for the preparation of the bedside notes for publication, and to Dr. Byron C. Darling for the admirable x ray plates and photographs. Special gratitude and appreciation are expressed to Dr. Benjamin T. Tilton, Dr. M. Marion Apfel, Dr. Frank J. Horn, and Dr. T. D. Sullivan, for the cases intrusted for examination, diagnosis, and treatment.

45 WEST NINTH STREET.

ANGINA PECTORIS SUCCESSFULLY TREATED

By High Frequency Currents from Ultraviolet Ray Vacuum Electrodes, and by Vibration.

BY SINCLAIR TOUSEY, A. M., M. D.,
New York.

CASE. Dr. W. F. P., aged sixty-four years, had led the life of exposure and irregularity characteristic of a country physician. His father had died of angina pectoris. He began in March, 1911, to have attacks of pain in the chest, spreading over the chest and down the left arm and accompanied by a sense of constriction in the chest. The trouble was regarded as arteriosclerosis, and nitroglycerin was found to control the individual attacks, but did not prevent their frequent recurrence.

The anginal attacks seemed to be brought on by muscular effort or mental excitement. At first the attacks would be three or four weeks apart, but in June, 1912, very severe pains developed in the back and limbs. These were very hard to endure and confined him to bed about half the time, in spite of iodides and nitroglycerin, until January, 1914. The arterial walls were then rigid, and the various pains were considered to be due to high blood pressure. He was scarcely able to walk. He was referred to me by Dr. George D. Fay, March 26, 1914. At this time the radial artery felt like a whipcord, the patient was suffering from frequent anginal attacks and almost constant severe pain in the back, and was so weak that he could scarcely get to my office, even with his wife's assistance.

A glass vacuum electrode exhausted to the ultraviolet degree, applied high frequency currents from an Oudin resonator to the front and back of the chest for about five minutes each; and a vibrator was passed over the abdomen along the course of the colon for about two minutes. The high frequency current was strong enough slightly to redden the skin toward the end of the treatment. Each successive application was the same and no medicine or diet was prescribed, except that on two occasions a local application of radium was made for the cure of a recurrence of supposedly malignant tumor of the left breast excised some years previously. This recurrent tumor disappeared after these two treatments.

The electrical and vibratory treatment was given on an average of twice a week from March 26 to July 1, 1914, when a complete summer intermission was taken. At the end of May the anginal pains had almost disappeared, and when they did occur they were much less severe. At the end of June they were seldom felt and were very slight. The rheumatic (?) pains were also much less severe.

July 1st, the anginal pains had permanently ceased, and the so called rheumatic pains in the back were a great deal better. The patient reported at the middle of October that no anginal pains had occurred and that the rheumatic pains occurred only

occasionally if he over exerted or contracted severe cold, and that he could walk quite well, was much stronger, and felt much better in every way. Treatment was resumed, December 11th, not because of any return of the angina, but in the hope of restoring a condition of robust health.

At the present writing, January 11, 1915, an examination by Doctor Fay and myself shows the radial artery practically normal; contrasting marvelously with its former rigid whipcord feeling. The patient is quite active, but catches cold easily; he has been free from attacks of angina pectoris for about seven months, most of the time without treatment.

850 SEVENTH AVENUE.

THE PROBLEM OF INEBRIETY.

BY EDWARD HUNTINGTON WILLIAMS, M. D.,
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and Assistant Physician, New York State Hospital Service.

One of the most difficult things about the liquor question today is to determine just why it exists. The answer to the question, "Why do most men drink?" appears difficult just in proportion to the extent of our knowledge of human nature; yet we can hardly expect to remedy a condition without knowing its cause.

Professor G. T. W. Patrick, of the Iowa State University, gives an inkling to the breadth of the problem as considered by psychologists. Professor Patrick has advanced the opinion that the craving for drink in normal persons is a desire to deaden the higher mental spheres which, being the last evolved, are feeblest, and suffer the most from the pains of exhaustion in the struggle for existence. In other words, that the desire for alcohol, or kindred substances having narcotic effects, represents a physiological human instinct. If this is true, we should expect to find that all human beings have an instinctive craving for such substances as alcohol, tea, coffee, tobacco, or narcotic drugs; and we do find this universal craving in all races, savage and civilized, without exception. But since the vast majority of persons do not crave excessive quantities, we must consider this type as normal, and stamp as abnormal the person who indulges habitually in excessive quantities.

In the case of the dipsomaniac we have, theoretically, a person whose brain structures are weakened in a certain part, just as in any other form of mental unsoundness. Indeed, this is the generally accepted view of modern clinicians—that the inebriate is a person whose brain is structurally different from that of the normal man. We should, therefore, draw the line just as distinctly between the inebriate and the normal person, as between the normal person and the lunatic.

Apparently, then, it is somewhat easier to explain inebriety than to explain the normal desire for narcotics, just as certain other pathological conditions are frequently easier to explain than physiological ones. We can readily understand, for example, why a nerve ceases to act when injured, but are wholly unable to comprehend the mechanism of normal nerve action.

The reason for taking "normal quantities" of narcotics is likewise enigmatic. There are many men who take a glass of liquor for the temporary stimulating effect to their mental faculties; not only take the liquor, but render themselves more efficient temporarily by doing so. On the other hand, there are persons, particularly those in a state of great mental activity, who take alcohol for precisely the opposite effect—to slow down the overactive brain cells. The first condition is illustrated by the classic case of the famous surgeon, John Hunter, who always took a glass of spirits (or laudanum) to key up his mind to the highest pitch before making an address; the second, is that of a modern statesman who resorts to a glass of liquor to "step down" his mental dynamo after a protracted strain of hard thinking, to produce sleep. In both cases cause and effect are relatively tangible. More obscure, and infinitely more important to us, is the explanation of why the average American today consumes so much more liquor than did the average American fifty years ago.

We may dismiss at once the assumption that men continue to drink alcoholic beverages through ignorance that excessive potations are harmful, despite what appears to be a fixed delusion of certain reformers to the contrary. Every person in this country, with the exception of very young children and imbeciles, knows that excessive use of alcohol is harmful. This knowledge has been drilled into school children and adults for more than a generation; yet the consumption of alcohol has continued as a steadily rising tide for more than fifty years.

The fact that this steady increase in per capita consumption of alcohol has been more marked during the last fifty years, and that during this same period there has been a complete revolution in our methods of life, and also a great change in liquor legislation, raises the question as to whether there is any direct connection between these conditions. In 1850 only about one person in ten lived in an urban community, and the country as a whole drank 4.08 gallons of liquor per capita annually. In 1913 every other man was a city dweller, and the annual consumption per capita had increased to about twenty-three gallons. During the same period a relentless war had been waged against liquor.

It may be merely coincidental that the increase in the consumption of alcohol, and the increase in urban population have kept pace; but there is no doubt that the changes in the mental attitude of the people that cause them to forsake the country for the city, is in their "higher mental spheres," and city life certainly influences these centres very materially. The person who leaves the farm to dwell in the city is actuated by increasing activity in his higher mental centres; either he is ambitious, or discontented—or both. He is, in short, in a state of somewhat unstable mental equilibrium, or at least a condition of heightened mental tension, compared with his more contented neighbor.

Unfortunately city life tends to aggravate, rather than lessen this mental state; the actual struggle for existence is infinitely more intense and demoralizing in the city than in the country. Or, again, the disappointments in ambitions in one of a dozen fields—wealth, social position, fame—affect directly these higher psychic centres of the brain that, according

to Professor Patrick, are responsible for the desire for a stimulant. Thus the city dweller, by the exhaustive mental activity in which he lives, would naturally crave drink more than the countryman, although it must be remembered that the quality of his mentality was an inheritance, not created, but possibly enhanced by city life.

We must remember also that the loneliness of city life for certain individuals tends to distort the higher centres of mental equilibrium; for, paradoxically, a crowded city is one of the most lonely places in the world. The compelling desire for companionship is a normal instinct, and this craving is not gratified by "merely being in a crowd without being of it." Our cities are full of lonely men, particularly in the poorer classes, and for such lonely persons, seeking to gratify their normal instinct of sociability, there is little choice at the present time but to become a member of the "poor man's club," the saloon.

It has been suggested that cheap theatres and similar amusements would afford the same attractions, but the prevalence of "movie" shows, without any appreciable effect upon the patronage of the poor man's clubs shows the fallacy of this prediction. The kind of mental stimulation offered by theatres or moving picture shows, does not take the place of the more intimate companionship of individuals. Sociability to the average man means gossiping with congenial companions—a kind of sedative mental pabulum, which may be regarded as the bread and butter of our mental commissary. Theatres, on the contrary, are stimulants—desserts or pastries, so to speak, which soon cloy if used as an exclusive diet.

We must also take into our reckoning the vast army of city dwellers who are constantly underfed and poorly nourished. There is not the slightest doubt that a mug of beer taken by one of these persons serves as a nourishing food, beside helping to gratify the craving of the higher intellectual centres. Undoubtedly actual hunger is an important element in the increased liquor consumption. Moreover, since the difficulties of getting sufficient food are steadily increasing, the resulting physical craving adds to the complexity of the problem of liquor control.

The fact that, although the country as a whole is far more intemperate than ever before, the proportion of inebriates appears to be very little larger than formerly, suggests that our race is gradually becoming immune to alcohol. "In my opinion," wrote Dr. Hiram Elliott recently, "the human system tolerates alcohol the best of all drugs, including tobacco"; and he adds: "This does not mean that a man could not be drowned in a bath of Malmsey. He could be drowned in milk."

There is a tendency, of course, for human beings to become more and more tolerant to injurious substances or diseases, when subjected to their influences for generations. We see this illustrated by the ravages of certain diseases, such as measles, which are relatively innocuous to civilized nations, but which are scourges to primitive tribes. And we have a similar indication in the effect of spirituous liquor upon races accustomed to the milder fermented beverages, who are driven to maniacal excitement even by relatively small potations of spirits. Moreover, the prevalence of alcoholic insanity

among certain races, and the small percentage of this disease in others, indicates that there is a tendency to increase immunity from alcohol. Thus the Jews in America appear to be almost immune to this form of mental aberration—are, indeed, some twenty times less liable to alcoholic insanity than other Europeans. Yet this immunity cannot be attributed to their abstemiousness, lack of development in the higher emotional centres, or difference in surrounding conditions. It may be explained, however, on the ground of acquired immunity, since the Hebrew line of descent as an unmixed race is much longer than any other in Christendom. This, then, probably explains why the Jews are immune to alcohol to a far greater extent than the races into whose veins has been more recently injected the newer and more susceptible blood, which is always a disturbing element.

There is another important factor that enters into the question of immunity. This is the *kind* of drinks for which immunity has been acquired; for there appears to be a very great difference in the effects on physical structures of the various beverages containing alcohol. If our theory of immunity is correct, we should expect to find that the older beverages, such as beer and wine, which have been used for thousands of years, are less productive of alcoholic insanity, for example, than the spirituous liquors which are recent innovations. In point of fact, we find this to be the case; the spirituous liquors are almost wholly responsible for all forms of alcoholic insanity.

We must not overlook the fact that the ardent spirits contain a far higher percentage of alcohol than the fermented beverages; but undoubtedly quality, as well as quantity, is an important factor. This is suggested by the effects of some of the other narcotics in their varied forms. It is well known that the natives of Peru who chew the leaves of the coca plant, from which cocaine is derived, do not become "drug fiends" even when using the leaves habitually. Evidently they have become immune to the drug when taken in the form to which their systems are accustomed, and which their ancestors have used for hundreds of generations. But it is asserted that these men are not immune to the product of the leaves when taken in the form of cocaine.¹

We have examples of this "selective immunity" illustrated in places where there have been recent changes in drinking habits. Mr. Palcioni, representing the Italian Government at the Fourteenth International Congress Against Alcoholics, in 1913, made the significant statement that, although Italy is the second largest wine producing and wine consuming country in the world, the Italians "had become noted throughout the world for their sobriety"—until recently; but that "ill advised ordinances" which resulted in the introduction of distilled spirits, were rapidly changing the situation. In all probability the aggregate amount of alcohol consumed was no greater than heretofore; but the Italians, who are relatively immune to older beverages, are not so to the newer forms.

Many of us are inclined to believe that tea, coffee, alcohol, and tobacco, are not only harmful sub-

¹For interesting information in connection herewith, see Porter, W. H., *The Value of Cocaine in Disturbances of Metabolism*, New York Medical Journal, April 25, 1914.—Eds.

stances, but substances that the world would be better off without. We must not forget, however, that we may be confounding cause with effect; for it is an indisputable fact that the introduction of these drugs was concomitant with the beginning of the era of man's greatest advancement. It is quite as easy to show that man developed with wonderful rapidity *because* of these substances as *despite* them. But, in any event, the fact is perfectly obvious that all these substances play an important, as well as a closely similar part in our civilization. It requires no very deep reflection to realize that, since a person may use any or all of them and remain normal, physically and mentally; or may produce physical and mental abnormality with any one of them, the question of their control or elimination is a most complex one.

A step in the right direction will be taken if we can get clearly in mind that the dipsomaniac is a diseased individual, quite different from the normal man who drinks in moderation. This abnormality has been recognized by physicians for years; but most persons are still unable to comprehend that there is an actual physical difference between the man who takes an occasional glass, and the abnormal person with an uncontrollable, maniacal craving for stimulants—are unable to understand that one of these types may be sane and normal, while the other is always abnormal, and periodically insane.

This same kind of ignorance characterized the public attitude toward other forms of insanity until a little over a century ago. Insanity was regarded as something that must be beaten, frightened, or legislated out of the erring person's system. It was not until lunacy was recognized as a disease, and treated as a diseased condition, that any progress was made in curing it. It is perfectly certain that until we recognize the cause of a condition, particularly a disease, we are not likely to discover a cure. It is interesting to note that the truth of this is borne out by the results of attempts hitherto made to eliminate inebriety by haphazard treatment, aimed at every one in general rather than at the inebriate in particular.

The results of this sort of legislation speak for themselves. The country has been flooded with literature and speakers, detailing the evil effects of alcohol, for more than a generation; we have laws in every State requiring that all school children be taught the dangers of intoxicating liquors; and in rather more than fifty per cent. of the territory of the country it is forbidden to sell alcoholic beverages in any form. Yet the average American today drinks more liquor than ever before in the history of our country—twice as much as in 1896, six times as much as in 1850.

The most that we can say for the present methods of dealing with alcoholism, therefore, is that they have not succeeded. They have failed just as signally as did the laws which treated lunacy as a crime instead of a disease—and probably for the same reason. The law may prevent a homicidal lunatic from committing a crime by locking him up; but the restraint will simply prevent him from manifesting his disease in a particular way, and will not remove the disease itself. The imprisoned lunatic

will show his insanity by insane acts other than the particular one of homicide.

We find the dipsomaniac exhibiting the same sort of evidence that he is suffering from disease. When drink is denied him he seeks other outlets for his abnormality; and unfortunately he usually finds these in one or another of the narcotic drugs. Indeed, it has been demonstrated conclusively in many communities that the prevalence of drug taking is directly dependent upon the difficulty in getting liquor.

On the other hand, there is practical evidence to support the assumption that where inebriety is treated as a disease far better results will be obtained than if it is treated as a crime. In some of the States inebriates are given treatment in suitable hospitals, instead of being sentenced to jail. The innovation is so recent and the statistics so meagre in consequence, that they offer only suggestive evidence; but it is certainly significant that Nebraska, which has for several years given inebriates special hospital treatment, shows a greater decline in the number of recent cases of insanity than any other State.

This State also shows a lower percentage of paupers and criminals than the adjoining State, Kansas, whose attitude toward alcoholism is radically different. California, which has laws very similar to those of Nebraska, ranks second in the decline of new cases of insanity, and first in the actual number of insane persons per capita in her institutions. When we consider the close relationship between pauperism, crime, insanity, and inebriety, these records seem most suggestive.

I have dwelt upon the treatment of the inebriate as though that pathological individual represented the whole liquor problem, and his elimination (or cure) the key to temperance reform. That such is the case, or, at least, that he is by far the most important item, is the view of modern alienists. Certainly with this abnormal person eliminated the problem would be greatly simplified. "The normal man would not become a drunkard," said one of the speakers on temperance at the National Conference of Race Betterment, "though the choicest brands of liquor ran free in the fountains at every street corner. The man with the squint brain will get liquor if he has to go through fire and water to get it."

Although the intelligent treatment of inebriety is a most important link in the chain of defense against alcoholism, it must not be regarded as a complete defense. Conditions that may lead to intemperance must also be corrected. The two conditions, however, should be attacked from entirely different angles, since one represents a disease, the other a normal condition. The point of view from which the inebriate should be regarded, just as in the case of the lunatic, should be a medicolegal one. The temperate drinker should be approached along educational lines.

The only practical method of treating the dipsomaniac at the present time is by isolation in some institution where proper medical treatment can be given, with confinement for a sufficient length of time to allow the diseased brain to adjust itself, so

that the afflicted person may gain complete self control. This presents no very serious difficulties; but in addition, we must also find some way of preventing the person with this defective brain from transmitting his defect to offspring. It is a well established fact that the defect which made this man an inebriate may be transmitted, and show itself as insanity, epilepsy, idiocy, or dipsomania in his progeny. The prevention of this, however, presents many practical difficulties, largely because we allow sentiment to overrule judgment; yet this is one of the most important problems in eugenics.

The treatment of dipsomania presents no insurmountable difficulties. The really difficult problem is that offered by the vast army of normal persons, probably representing ninety-five per cent. of the adult male population of the country, who consider it their inalienable right to eat and drink what they please, and who do so on occasion. Any attempt to dictate by arbitrary legislation to this army about these sacred things is to flout all our knowledge of human nature. The most that we can possibly hope to do at once, and probably the only thing that is necessary, is to attempt to make men as rational about drinking as about eating, or the gratification of any of the other normal instincts.

"Doubtless overeating of protein food kills more people than overdrinking; yet we do not attempt to legislate eggs and beef and fish out of the market," said one of the Battle Creek temperance speakers. He might have added—being himself a medical man of wide experience—that even if we did legislate them out, a vast majority of people would find a way of getting them. Merely because a food, or a drink, is harmful and forbidden does not prevent persons from getting and taking it.

There is a way to accomplish this reduction of the protein diet which physicians find successful where absolute interdiction fails. This is by offering some substitute protein that is less harmful—a perfectly practical expedient constantly employed by physicians. The problem of alcohol presents almost precisely identical conditions. Certain forms of alcoholic drinks are infinitely more harmful than others, just as certain proteins are more harmful. The evil effects of beer and wine, for example, are greatly less than those produced by spirituous liquors, just as, in certain diseases, the effects of the protein in cheese seem to be less harmful than those of red meat. In clinical practice it is perfectly easy to induce patients to substitute the less harmful proteins for the more harmful ones; whereas if meat were interdicted without a substitute, the patient would "eat it whether it killed him or not."

These are some of the practicalities of treating certain pathological conditions; and the same sort of practical psychology should be exercised in controlling and guiding the appetite for alcoholic beverages. To forbid absolutely the use of liquor seems to insure its consumption. Our knowledge of the perversities of human nature suggests that this would be true; and the records of the liquor traffic confirm it. It might be possible, however, to induce men to confine themselves to the milder beverages as a stepping stone toward practical temperance re-

form, thus eliminating the more harmful ardent spirits.

Whatever the method attempted, we must understand that there is not the remotest probability of being able to accomplish any revolutionary effects immediately, except perhaps in the matter of curing or eliminating the drunkard. The custom of drinking liquor, which has been practised for thousands of generations, is much too firmly established to be suppressed immediately. Fortunately the habit of drinking the more harmful spirituous liquor is a comparatively recent one, and in all probability less difficult to eliminate.

In certain European countries they seem to be making progress in this direction by placing a higher tax on the spirituous liquors, and a higher license price for places in which such drinks are sold. In short, they are placing practical obstacles in the way of selling ardent spirits without actually forbidding their sale. As a result, the consumer must pay more for such liquors, and therefore tends to buy the cheaper, but also more hygienic beverages. Since this method seems to work well in Europe, there is no economic reason why a similar method should not be tried in this country.

At the same time, intelligent efforts should be made to keep alcoholic beverages of all kinds out of the hands of minors; for, in its final aspects, the liquor problem is preeminently one of adolescence. The youth who does not taste liquor until his majority minimizes the danger of acquiring the habit in a dangerous form; and the man who does not drink until he is thirty years old is in very little danger of becoming a drunkard.

Restricting the sale of intoxicants to adults presents no very serious difficulties as far as the places for public sale are concerned, most of which observe the statute prohibiting the sale of liquors to minors, which is in force almost universally at the present time. This statute is backed by the approval of an overwhelming majority, even of the drinking men themselves. The real solution, however, must be found in educational methods along rational lines; for, as a recent writer has pointed out, "the real safety must come through the development of self reliance and self control, rather than the attempt to make it impossible for the youth to secure alcohol."

We have been attempting this very thing, it is true, for a full generation, by teaching the dangers of alcohol to all public school children; but the present methods of teaching are archaic, and not in accord with the modern conception of rational instruction. They aim to teach by attempting to frighten rather than enlighten—by exaggerations and falsehoods that are apparent to any intelligent boy. By modifying and modernizing this teaching, it would be possible to impart the simple facts about the dangers of alcohol during adolescence without arousing the "skepticism in respect to the whole matter," which former President Taft has pointed out to be the result of the present methods.

By the methods just outlined we should make provision for the two most important elements in the liquor question, the inebriate and the adolescent. There would still remain for consideration the vast

army of members of the "poor man's club"—the persons whose social instincts rather than their craving for alcohol makes them frequent the saloon. In a recent address, Dr. Henry Smith Williams made the following practical suggestions:

Provide a substitute club that can more than compete with the saloon. It is at least an open question whether it will not be necessary to serve malted beverages along with soft drinks in the refreshment department of the entertainment halls. If this is done, of course any profit accruing, would be utilized for the betterment of the amusement hall itself.

Perhaps the most important single department of the workingman's club that would be thus provided as a substitute for the saloon, would be the gymnasium. The educative value of a properly equipped gymnasium cannot well be overestimated. Vigorous physical exercise—competitive exercise in particular—affords most wholesome outlet for the pent up energies of youth. Even a modest gymnasium may afford ample facilities for boxing, wrestling, hand ball, fencing, vaulting, to say nothing of the noncompetitive exercises. The participant in these sports has the opportunity to learn from observation that the men of greatest athletic prowess hold their titles to supremacy contingent upon abstinence from intoxicants.

If, by some such methods as just outlined, we can eliminate inebriety, protect adolescence, and attract men away from the saloon, we shall be making progress. Even if we succeed only in holding the consumption of liquor to its present limits, we shall accomplish far more than has been accomplished in the past quarter of a century.

609 EXCHANGE BUILDING.

NEPHROLITHIASIS.

With Special Reference to Differential Diagnosis.

BY GLEN EDRIE MACKLEM, A. B., M. D.,
Detroit.

Were all the literature upon the subject of nephrolithiasis which has appeared in the medical journals for the past decade or so assembled in a single work, it would constitute a number of volumes sufficient to fill more than the average physician's library; yet it seems to me that too little stress has been laid upon the differential diagnosis, and it is for this reason that I have endeavored in the following dissertation to go into the details of the diagnosis and clear up in the minds of my colleagues many points which have until recently impressed my mind unsatisfactorily. Should I succeed in making clear any of these points to a single reader, I shall feel amply repaid for my trouble.

Nephrolithiasis as a clinical entity has been recognized since the earliest times. Hippocrates gives us a detailed account of his treatment, both from the medical and surgical viewpoints, and each succeeding century presents men of distinction whose time and energies were spent in attempts to relieve this ever present condition. In Italy, especially, provisions for its relief were extensive, as may be attested to by the medical history of this race of people; and it was Dominico de Marchetti, the famous Italian physician, who performed the first authenticated nephrolithotomy. Among native born Americans the condition is comparatively rare.

Though the presence of renal calculus is most frequently noted between the ages of twenty and thirty years, it is encountered at any age, uric acid infarcts

having been found in the newborn; yet, generally speaking, it is rare in children. Males suffer slightly more often than females; certain localities, especially warm climates, favor its development, owing to active elimination by the skin and the consequently concentrated condition of the urine, a family history showing an hereditary tendency may often be elicited. Among the poor its prevalence is decidedly noticeable, owing no doubt to the ingestion of unsuitable foodstuffs and alcohol, and the consequent formation of large amounts of nitrogenous waste products which are eliminated by the kidneys. Movable kidney, a condition often simulating renal calculus, favors the formation of stones, and people of sedentary habits make up a large proportion of the afflicted. From Küster's statistics one is led to believe that the Jews are more subject to the formation of calculi than other races; while the most noted investigators of the southern clinics report the fact, that though the negroes constitute the great majority applying for treatment, those presenting symptoms of stone are few; not one has ever shown stone in the kidney in the clinics at Johns Hopkins Hospital.

As to the immediate cause of renal calculi, they may be said to occur as a result of the precipitation of urinary salts into the renal epithelial cells, and the gluing together of these salts in the tubule of the kidney, in its pelvis, or in one of its calices, by material derived from mucus, upon some object which acts as a nucleus, such as foreign bodies, blood clots, masses of mucus or pus, and microorganisms. This precipitation is usually preceded by a catarrh of the renal tubes, brought about by a highly acid condition of the urine. Calculi, therefore, all originate in the kidney, are originally of small size, and may remain within the organ or be washed down the urinary tract, according to the location or the conditions under which they form. The stones which remain within the kidney eventually produce a pyelitis with its accompanying symptoms, while those that wander away either become permanently fixed within the pelvis, where they block, tear, or distend the orifice of the ureter, or find their way down the ureter as gravel and produce the typical nephritic colic.

As to the size and number of stones, it may be said that as many as two hundred have been reported, and they may vary in size from a grain of sand to the size of one which Guiteras, of New York, removed, in a case of pyonephrosis, which measured four inches in diameter. It may be stated that it is the rule in cases complicated by suppurative conditions of the organ, that the stones are both of greater number and of larger size. Grave, of Moscow, reports the case of a peasant woman, forty-nine years of age, whose kidney, after removal, was found to contain a calculus weighing almost twelve ounces and of a shape similar to that of the renal pelvis. At the lower pole of the kidney, in a pouchlike dilatation, another stone was found of a roundish shape. Although according to the author, this is the largest renal calculus thus far observed in Russia, he refers to two other cases, in one of which reported by Shield, a calculus weighing over eighteen ounces was found, and in the other, reported by Dentu, one weighing about thirty-four ounces.

As it seems an impossibility to adopt a better classification than has been used for several years, I shall consider calculi as falling under two heads, viz., primary and secondary. Those falling under the primary variety are formed by the precipitation of salts excreted by the kidney without previous change in the parenchyma and independent of septic conditions of the urinary passages. Though usually formed in acid urine, in which case the calculi are composed of one or more of the following salts, uric acid, urates, xanthin, cystin, or calcium oxalate, they may appear in urine of alkaline reaction, which is brought about by an ammoniacal decomposition as a result of either local inflammation or infection. These are stones of the lime variety and are composed of acid phosphate of calcium, carbonate of calcium, or the basic phosphates of calcium. Stones falling under the secondary variety are formed by the precipitation of salts excreted by a kidney which has undergone pathological changes, and are the secondary results of septic processes occurring within the calices or pelvis, accompanied by urinary decomposition. These stones are phosphatic in character and are composed of the phosphates of ammonium and magnesium or of a mixture of the ammoniomagnesium phosphate and the phosphates of calcium. Whether falling within either the primary or secondary groups, it has been clearly and conclusively demonstrated, that in addition to the crystalline constituents, each stone possesses a framework of an albuminous nature, as is the case in all precipitates in the urine. Both varieties are more frequently encountered in the right kidney, owing possibly to its being more freely movable; and stones in kidney and ureter on the same side, and stones in both kidneys and ureters are not infrequent. Ureteral calculi are, I believe, rarely anything but renal in origin.

As my purpose is to consider in detail the differential diagnosis, rather than the chemistry and formation of renal calculi, for lack of space and the fear of becoming irksome, I shall pass on to the consideration of the symptoms, diagnosis, differential diagnosis, pathology, and treatment.

When the term, nephrolithiasis, is mentioned the typical nephritic colic invariably forms the clinical picture, yet if one always bases one's diagnosis upon these colic symptoms alone, one will frequently be confronted with a problem difficult to solve; for typical stone symptoms are encountered in several other conditions, and stone cases are numerous with few, if any symptoms. It may be generally stated that there are few diseases of the kidney in which one is so apt to encounter such variable symptoms as are produced by renal calculi. In other cases in which complications are present, the cardinal symptoms of stone are absent, the complication creating the symptom complex, the zealous diagnostician thus often being led astray. It is these cases, or those presenting reflex symptoms, that are frequently diagnosed as lumbago, chronic appendicitis, or cholelithiasis. In the average case, however, pain constitutes the most prominent symptom, the severity of which depends upon the roughness and movability of the stone, rather than upon its size. A fixed stone in the kidney or a smooth one in the pelvis rarely causes more than slight dis-

comfort, while a rough stone in the pelvis is the occasion of the most excruciating agony. The pain which is usually acute, has its chief seat in the loin of the affected side, or in the same side of the abdomen, frequently radiating along the course of the ureter toward the testicle, or labium majus, or into the thighs. It is usually preceded by a chill with nausea and vomiting, being caused by a stone becoming engaged in the mouth of the ureter or beginning its descent of the canal. I wish again to impress upon the mind of the reader, that the extent of the disease should never be determined by the lack or presence of symptoms of unusual severity, especially pain, as cases are frequent indeed in which the subjective symptoms are few or are replaced almost entirely by those of a reflex character, and yet an almost total destruction of the kidney may have taken place. In milder cases pain may be absent or replaced by a feeling of nausea accompanied by pricking sensations along the course of the ureter. The paroxysm of pain usually lasts for two or three hours, either until the calculus has passed through the ureter into the bladder or has dropped back into the pelvis of the kidney. It is aggravated by movements of the patient and terminates more or less abruptly. During this paroxysm micturition is usually frequent, being more marked in cases in which the calculus is in close proximity to the ureteral orifice in the bladder. This repeated desire to urinate, however, is productive of little urine, and is frequently associated with rectal tenesmus of varying intensity. In cases in which the mouth of the ureter is incompletely occluded, there will be a tinge of blood in the urine, and if the kidney is affected the urine will be more or less turbid. Ureteral blood casts may be passed after the expulsion of the stone and occasionally during the act itself.

Hematuria presents the symptom of second importance, especially in cases of oxalic calculi, owing to their rough mulberry form, and from the standpoint of the patient is the symptom which occasions most concern, and for which he is most likely to consult the physician. This hematuria is the result of congestion or tissue injury, and may be of sufficient quantity to be easily detected by the patient if no obstruction to the flow of urine is present, or it may be of only sufficient quantity to be detected by the microscopist. It is accentuated by the movements of the patients and by prolonged standing, and in these respects differs from the hematuria in renal tuberculosis. As an aid to diagnosis it should be remembered that in practically every case blood cells may be found in the urine immediately upon the cessation of the attack of colic.

Anuria undoubtedly occasions great alarm in the mind of the patient, and it is stone which produces sudden anuria the most frequently; in fact, by careful examination of the urine, and the taking of a detailed history of the patient, many of those formerly unexplained and troublesome cases of urinary suppression may be traced to the presence of an unsuspected stone somewhere in the urinary tract, especially in the ureter. Here, however, a nicety of discrimination becomes necessary, as a tuberculous ureteritis may be the exact cause, and yet the symptoms of stone predominate.

From the viewpoint of the diagnostician, however, the reflex symptoms, which have only been mentioned in passing, are of the most importance, as they present the greatest difficulties and often make the diagnosis far from clear and positive.

They have been classified by Guyon as renorenal; the pain is transmitted from the kidney which is the seat of a stone to the one which is not, by means of the direct communication between one renal plexus and the other. This kidney causing the

	<i>Age.</i>	<i>Sex most frequently affected.</i>	<i>Side usually affected.</i>	<i>Pulse.</i>	<i>Temperature.</i>	<i>Character and location of the pain.</i>
Nephrolithiasis	20 to 40	Males slightly more than females	Right	Feeble and rapid	Present if infection has taken place	Usually acute, paroxysmal, and intense, having its chief seat in the loin of the affected side; terminates more or less abruptly after a variable length of time
Renal tuberculosis.....	20 to 30	Females	Right	Increased in frequency and of low tension	Intermittent or hectic in nature	Usually a dull ache in lumbar region; paroxysmal attacks of colic occur if masses of debris pass down the ureter
Movable kidney.....	30 to 50	Females (multiparous)	Right	Rapid	Normal	Usually of a dull aching character, either constant or recurring, and accompanied by a sense of dragging and heaviness; in loin below the twelfth rib
Tumor of the kidney.....	Childhood and after 40 years	Males	Both	Not characteristic	Usually normal	Of little diagnostic value, varying from a dull diffuse backache to severe renal colic, which occurs only when wormlike blood clots or tumor fragments pass down the ureter
Unilateral hemorrhagic nephritis....	20 to 30	Both about equally	Both	Not characteristic unless hemorrhage is severe then weak	Not characteristic	Of practically no diagnostic value, may be absent entirely, moderate, or quite severe, and is in the region of the affected kidney
Acute appendicitis.....	Youth and middle age	Males	Right	Accelerated with onset of pain	102 to 103, begins 2 or 3 hours after onset of pain	Violent, spasmodic, and paroxysmal; comes on as a rule gradually very often early in the day; general at first, but soon becomes localized in the right iliac fossa
Gallstone colic.....	35 to 70	Females	Right	Accelerated with onset of pain	Normal or subnormal; occasionally slightly elevated	Violent, spasmodic, and paroxysmal; comes on suddenly very often about 3 hours after a hearty meal or gradually, preceded by flatulence; in the hepatic and epigastric regions; duration 4 to 20 hours
Nephralgia	20 to 70	Females slightly more than males	Both	Not characteristic	Not characteristic unless due to coexisting nephritis	Usually tearing in character and located almost exclusively in the back
	<i>Tenderness and muscular rigidity.</i>		<i>Loss of weight, strength, and appetite.</i>		<i>Chill.</i>	<i>Symptoms of collapse.</i>
Nephrolithiasis	Tenderness present; rigidity, if present, only slight		Absent unless attacks are very frequent or suppurative processes are marked		Usually precedes the onset of pain	Present only in cases of unusual severity
Renal tuberculosis.....	Frequently present upon deep percussion over loin; extreme in some cases		Progressive, marked after suppurative processes have begun		Present only in cases of colic when it precedes the access of pain	Present only in cases in which colic of unusual severity occurs
Movable kidney.....	Tenderness frequently present, but as a rule muscular rigidity is absent; mobility of kidney more or less marked		As a rule absent; if present, only slightly marked		Rarely present	Present only in advent of Dietl's crises
Tumor of the kidney.....	Usually tenderness may be elicited over the site of the growth, but muscular rigidity is usually absent		Rapid and progressive in the malignant varieties, but slightly pronounced in the benign forms		Absent	Absent
Unilateral hemorrhagic nephritis....	Absent		Proportionate to the hemorrhage and existing nephritis		Absent	Absent
Acute appendicitis.....	Tenderness over McBurney's point soon becomes apparent; rigidity of right rectus muscle marked		Absent		Chill at onset rare	Present if pain is severe
Gallstone colic.....	Tenderness marked over junction of right rectus muscle and the costal arch; rigidity of the right rectus pronounced		Absent		Patient may shiver and sweating may follow, but rigors are rare	Quickly reached
Nephralgia	Slight tenderness over kidney may be present, but muscular rigidity is, as a rule, absent		Absent		Absent	Absent unless a severe attack of colic occurs

reflex pain has, however, been repeatedly proved by ureteral catheterization to be the seat of a nephritis. The renovesical symptom is due to the presence of a stone in that part of the ureter within the bladder wall, or else to pressure of the calculus on the

sensory nerves supplying the bladder. The gastrointestinal symptom, in which dyspeptic symptoms predominate, is due to the intimate connection between the splanchnic and the renal plexus. The renoureteral, renoovarian, and renotesticular symp-

<i>Radiation of the pain.</i>	<i>Nausea and vomiting.</i>	<i>Leucocytosis.</i>	<i>Hematuria.</i>	<i>Vesical irritability.</i>
Downward along the course of the ureter toward the bladder, often to the ilium, sometimes to the leg, ovary, testicle, or opposite kidney	Frequently present immediately following and preceding the onset of pain	Absent	In practically all cases blood can be found in the urine immediately after an attack of colic; usually small in amount; exertion and prolonged standing frequently the cause	Frequently present during attack of colic, more likely to occur when the stone is low down
Absent unless attacks of colic occur, in which case as above	Absent unless attack of colic occurs, when it resembles above	Absent	Present sooner or later, often appears spontaneously and ceases as suddenly; not dependent upon exertion	Becomes more marked as disease progresses and is noted both day and night
Usually strictly confined to loin, but in case of Dietl's crises radiation is the same as in nephrolithiasis	Present in advent of Dietl's crises	Absent	Present only after attack has subsided, if present at all	Slightly increased, but of an irregular character
Little radiation except in colic cases when it resembles nephrolithiasis, or in case a varicocele complicates a left sided tumor, when a greater part of the pain may be in the scrotum	Absent unless attacks of colic occur	May be present in the late stages of the malignant varieties, but in these cases the blood count frequently resembles that of secondary anemia	More abundant than in any other renal disease; appears spontaneously and ceases just as suddenly; not dependent upon exertion	Not pronounced
Absent	Absent	Absent	Varies in severity and frequency in individual cases	Absent
Not always present, but if so radiates along the general direction taken by the appendix	Nausea the rule; vomiting occurs early, usually 3 to 4 hours after onset of pain	Present: 10,000 to 20,000	Absent	Occasionally, but not usually present
Upward over right half of thorax to right scapula	Nausea profound; vomiting as a rule occurs early and consists first of mucous and later of bile	Absent	Absent	Occasionally, but not usually present
Toward the bladder or down the ureter into groin and down inside the thigh	Absent unless a severe attack of colic occurs	Absent	As a rule not great enough as to result in any serious impairment of health; may appear in the urine alone without any severe pain in the kidney	Not as a rule present, though in some cases it is markedly increased and painful
<i>Facial expression.</i>	<i>Respirations.</i>	<i>Position of patient.</i>	<i>Urinary findings (usual).</i>	<i>Condition of bowels.</i>
Indicative of suffering and apprehension	Rapid, but usually normal	Ever changing	Amount decreased; reaction, markedly acid; sediment, small stones or gravel not uncommon; albumin, usually present; blood cells, present; casts, hyaline, granular, epithelial, blood, pus, or mixed; pus, if infection is present; bacteria, if infection is present	Not characteristic
Normal at first, assumes that presented by the ordinary tuberculous patient as the case progresses	Slightly increased	Normal except when an attack of colic occurs when it resembles the above	Amount increased; reaction, faintly acid; sediment, abundant and chiefly pus, free and in clumps; albumin, present but variable in amount; blood cells, present; casts, hyaline, granular, epithelial, and pus; pus and bacteria, stage of destruction	Not characteristic
Unless Dietl's crises occur, normal; in such event same as in nephrolithiasis	Rapid at time of Dietl's crises, otherwise normal	Normal except at time of Dietl's crises when it is one of great restlessness	Does not differ much from normal, deviation depending principally on the presence or absence of retention or strangulation; blood cells often found after an attack of Dietl's crises	Constipated, due to pressure or dragging on the colon
Normal in benign forms; that of cachexia and emaciation in the malignant varieties	Unchanged	But little affected	Albumin present; blood cells, constant; most important point in connection with these cases is the presence of characteristic cells of the growth in the microscopical sediment; these are irregular in shape, atypical in character, and often showing signs of fatty degeneration	Not characteristic
Not characteristic	Normal unless hemorrhage is severe, then it may be shallow and rapid	Normal	The urine in these cases shows merely the evidences of a nonsuppurative nephritis; blood cells present; pus absent	Not characteristic
Indicative of severe pain, later Hippocratic	Shallow and rapid	On back with right thigh flexed on the abdomen	The urine may contain blood or pus, and frequent and difficult urination may be complained of, but one should bear in mind that in appendicitis with inflammation of the vesical peritoneum there may also be record of urinary difficulty	Constipated
Indicative of intense suffering and apprehension	Extremely shallow	Unusually restless and in an effort to gain some comfortable position patient often assumes some strange contorted position	In this class of cases nothing characteristic is found in the urine except in a few cases which show bile	Constipated
Not characteristic	Not as a rule affected	Not characteristic	The presence of other elements than blood is of the greatest importance; pus and bacteria will indicate infectious diseases, casts and albumin a true nephritis	Normal

toms are all due to pressure of the calculus upon the sensory nerves supplying these organs. As these reflex symptoms do not compose the true clinical picture presented in the average case of calculus in the kidney or ureter, the possibility of nephrolithiasis should never be overlooked.

Several more symptoms of this condition might be considered here, but as they will be taken up under the heading of differential diagnosis, they will be omitted at this juncture.

Although the diagnosis of this condition may at first appear to be a simple matter, we shall find that after giving due consideration to conditions which simulate it closely, that we shall frequently be called upon to put into use, not only the methods which have been in vogue for the past several decades, but also those which have been evolved from modern research. In endeavoring to make the diagnosis, it is necessary to consider several factors, and the positive determination of the existence of stone rests, not only upon the signs presented by the suspected kidney, but also upon those presented by its fellow. It is plainly evident, therefore, that many cases will present themselves in which several, if not all, of the following diagnostic methods will have to be resorted to.

Little need be said in regard to obtaining a good history of the case, and to giving the patient a thorough general examination as to temperature, pulse, blood pressure, and any deleterious effects upon the general health; every physician should be sufficiently well versed in this line.

As soon as a patient presents himself, giving a history of suffering from colicky pains in the region of the kidney, usually occurring during the day and especially after prolonged standing or exertion, he should be requested to bring a sample of his urine, which should be sent to an expert pathologist for examination. Unless the practitioner is unusually adept in this line, he should not base his conclusions upon his own uranalysis. If the urine presents typical indications of the disease, the uranalysis chart will show the following principal points:

1. Amount decreased.
2. Color varies with the amount of blood, turbid and of greenish tint if pyonephrosis is present.
3. Odor normal; as a rule, very offensive if pyonephrosis is present.
4. Reaction markedly acid as a rule, may be alkaline (always so if pyonephrosis is present).
5. Specific gravity varies with the amount of diluents taken.
6. Sediment: Small stones or gravel are not uncommon, if pyonephrosis is present, microscopical examination shows degenerated pus corpuscles with numerous round cells.
7. Albumin is usually present when blood cells are found, if pyonephrosis is present 0.125 to 0.25 per cent. and a large amount of globulin.
8. Blood cells are almost always present, especially after an attack of colic.
9. Casts may be hyaline, granular, epithelial, blood, pus, or mixed.
10. Pus is found if infection is present.
11. Bacteria will be found if infection is present (pyogenic cocci; colon, typhoid, proteus, pyocyaneus, or tubercle bacilli).

Should the urine prove to be of an atypical character, use of the cystoscope in conjunction with the ureteral catheter bougie is indicated. Care should

be exercised, however, lest the case be one of renal tuberculosis in which the bladder has not become involved; for it has been asserted by several authorities that cystoscopy occasionally gives rise to traumatism that is sufficient to act as a predisposing cause of vesical tuberculosis where the bladder has been free from involvement in cases of renal tuberculosis until after the examination.

The ureteral catheter enables the diagnostician to determine the position of the stone by actual measurement from the ureteral orifice, and by comparison from the renal pelvis. When attempting to pass the catheter, an obstruction to its free introduction should always be interpreted as a stone, as a ureteral stricture may frequently be encountered due to a preexisting simple ureteritis, kinks of the ureter, or tuberculous or carcinomatous degeneration. The ureteral catheter also presents us with the most useful method of determining the contents and size of the renal pelvis, should there be a co-existing pyonephrosis or hydronephrosis. By means of the catheter we are also enabled to inject into the renal pelvis, or into the dilatation behind the stone, solutions of collargol, which serve a purpose of inestimable value in cases to be referred to the röntgenologist. Possibly the most useful purpose to which the ureteral catheter is called upon to serve in this class of cases is to collect the secretion from each kidney separately, and for this purpose it is far more simple and satisfactory than any of the urine segregators now on the market.

After introducing a catheter into the pelvis of each kidney, the cystoscope or endoscope is removed from the urethra, the catheters being permitted to remain within the ureters. The exposed ends of the catheters are then placed in test tubes, which are held securely by means of a Friedmann combined test tube and cystoscope holder, and a sufficient amount of urine is collected from each kidney to be later sent to the laboratory for thorough examination.

The diagnostician should now estimate the functional renal activity by using either phenolsulphonaphthalein in connection with the Hellige colorimeter, or indigocarmine. Each has its advocates and either may be given intramuscularly or by the intravenous route. For those versed in asepsis, I recommend the intravenous method, as by this route more rapid elimination is produced and greater exactness obtained—results extremely desirable to the physician performing either of these tests as an office routine.

While waiting for the excretion of the functional test solutions to begin, the diagnostician may, if the patient is a woman, reinsert the endoscope and adopt the wax tipped bougie method for the determination of the presence of stone. Much has been written upon the use of the wax tipped catheter or bougie as a means of diagnosis, since the method was developed by Kelly in 1895. It consists in obtaining scratches upon the dental wax where it comes in contact with a concretion; but it should never be employed except by those skillful in the use of the cystoscope and ureteral catheter, and possessing every means for obtaining strict asepsis, as the cystoscope is an instrument of unrivalled diagnostic

importance in the hands of the initiated, but capable of producing serious results when used by the novice. The method is of unlimited value in many cases, and such men as Kelly and Ayers report successful diagnoses from this method where all other methods, including the x ray failed. Up to the present time its application has been almost entirely confined to the female, as the endoscope may then be used, its greater diameter being a distinct advantage. The strictures of the ureter already mentioned should never be lost sight of, if one decides to use this method of diagnosis, as they are frequently a source of misinformation, especially strictures of a tuberculous nature; they have frequently been found to have scratched or gouged the wax in a manner very similar indeed to stones.

As the technic of the introduction of the cystoscope and ureteral catheter and their uses are so fully and vividly described in the treatise on cystoscopy of either Squier or Pilcher, the reader is referred to these excellent sources for information on these points; though I wish to emphasize the prime importance of testing thoroughly every catheter before using it, and washing it immediately afterward, as the embarrassment of finding it plugged, and the necessity of its withdrawal for cleaning after it has been introduced, may thus be spared.

Palpation of the urinary tract occasionally gives conclusive evidence as to the existence of stone in the upper portion, and is of the greatest importance in the lower portion, especially when the stone has become incarcerated at the lower constriction of the ureter or in that portion which passes through the vesical wall. In the case of a woman, it should be borne in mind that one is able to reach a much higher point through the rectum than through the vagina.

In view of the fact that nearly everywhere there is now an x ray apparatus, it should be the rule for the physician to see that a röntgenograph of every suspicious case is made. Though radiography cannot always be depended upon to furnish positive evidence of the existence of calculi, nevertheless it furnishes the most important method of diagnosis which the average physician has at his disposal. Should the clinical diagnosis point to the presence of a calculus, and the x ray findings corroborate it, we can feel reasonably positive that the case is one of nephrolithiasis. In only a small percentage of cases is there failure to find stones, if they are present. Should doubtful shadows present themselves, either an x ray catheter may be inserted into the ureter, or the ureter may be injected with a colargol solution through the ordinary ureteral catheter. Especially in cases of long standing is this latter procedure recommended, as the dilatation of the ureter which exists above the impacted calculus is readily outlined. It should be borne in mind that, in order to obtain a satisfactory picture, it is absolutely essential that the bowels of the patient be thoroughly evacuated.

This brings us to the consideration of the differential diagnosis, which, as I have already mentioned, constitutes the leading point, and demands most careful thought. I will attempt, therefore, to give

in a concise form a differentiation of the diseases with which nephrolithiasis may be confounded. In examining the table one may be impressed with the notable fact that while many of the symptoms are the same for the various diseases, no two are alike throughout. In each disease there is some distinctive condition which serves to differentiate it from the other affections for which it might be mistaken. By careful comparison it will be readily seen that the disease for which nephrolithiasis might be most frequently mistaken is renal tuberculosis, and if the later is attended by the passage of any considerable amount of debris from the ureter, differentiation will be most difficult indeed if the clinical manifestations are alone taken into consideration.

As my pathological knowledge is somewhat limited, I shall not attempt to go into detail concerning the pathology of renal calculi, but merely touch upon those factors which should not be overlooked, and refer the reader to any standard textbook for further enlightenment. Occasionally cases have come to the post mortem table showing the presence of renal calculi, yet when the kidney was removed and examined, but slight alteration in its anatomical structure was noted, and a history of but little influence upon its functional activity could be elicited by reviewing the life history of the patient. These cases are rare, however, and sooner or later destructive changes are produced in one direction or another. In case the stone acts as an obstruction to the free flow of the urine, by occluding the mouth of the ureter or becoming incarcerated in its lumen, a hydronephrosis develops, and a dilatation of the renal pelvis ensues. As the presence of a stone in the urinary tract always predisposes to bacterial infection, the kidney sooner or later becomes the seat of a pyonephrosis, and if proper treatment is not instituted, the kidney undergoes complete destruction, becoming converted into a pus cavity of varying dimensions. When the stone obstructs one of the renal calices, formation of a cyst usually follows. Frequently an unexplainable change of a fibrous fatty nature takes place in the capsule of the kidney and the surrounding fat, and the kidney undergoes complete degeneration, its place being taken by a fibrous fatty mass. It is by no means uncommon in cases of nephrolithiasis to be able to demonstrate a coexisting chronic interstitial nephritis, due to an enormous increase in the amount of the connective tissue of the kidney from constant irritation by the stone.

This brings us to the treatment, which should be taken up from both the medical and surgical standpoints. Medical treatment which can only be symptomatic and palliative, should always be given a fair trial, unless the case becomes an emergency one by the stone passing into the ureter and completely blocking it, in which case anuria is produced and either a hydronephrosis or pyonephrosis develops. Of prime importance is careful regulation of the patient's diet, which should be modified according to the variety of salts found during the uranalysis. Mineral waters which act as diluents, are to be recommended and selected according to the constituents of the calculi. Dilute nitrohydrochloric acid serves us well in cases of phosphaturia. In cases

of hyperacidity of the urine, lithium benzoate usually exerts a beneficial influence, while ammonium benzoate acts equally well in alkaline urine. Uva ursi has been used by me extensively, and appears to relieve congestion and irritation and increase the flow of urine to a more marked degree in this class of cases than any other agent. In case pyelitis has developed I rely upon new hexamethylenamine to control the sepsis. This salt is the anhydromethylen-citrate of hexamethylenamine, and as in the case of the older preparation, its virtues depend upon the splitting up and liberating of formaldehyde within the urinary tract. Minute scientific research and exact clinical observation have shown that the drug effects a urinary antiseptis which was unattainable prior to its introduction. It renders the urine clear and acid, rapidly eliminating microorganisms, blood, mucus, pus, uric acid, and urates, and acts sedatively upon the inflamed mucosa of the urogenital tract. In cases of alkaline urine, I combine it with benzoic acid, which assists in imparting an acid reaction to the urine. Hematuria, though rarely of serious moment, calls for the administration of some hemostatic agent, and of late I have been using emetine hydrochloride hypodermically. My method consists in injecting into the thigh one c. c. of distilled water containing 0.04 gram of the drug. This method of dealing with hematuria in both this condition and renal tuberculosis was evolved as a result of the drug's effectual and prompt control of hemorrhage in amebic dysentery, and I have been favorably impressed with its astonishing results in these conditions.

At the time of the colic, I administer either morphine combined with atropine, or of a tablet of morphine, cactine, and hyoscine hypodermically, and direct that compresses wrung out of a hot twenty per cent. magnesium sulphate solution be continuously applied over the kidney, groin, and lower abdomen.

In treating the case surgically, the location of the calculus must be taken into consideration, and the field of operative procedure determined upon with this in mind. An eminent authority deems an operation inadvisable should the excretion of urea be below one per cent. Should the stone be within the kidney itself, either a nephrotomy or nephrectomy should be performed; but under no consideration should the kidney be removed, unless there is present in the kidney to remain, an amount of normal functioning renal tissue corresponding to at least one third of the total normal renal tissue. It might be stated that it is often safer to do a nephrectomy in cases of multiple calculi imbedded in the kidney substance, than to inflict the trauma necessary to remove the stones by doing a nephrotomy, as alarming primary or secondary hemorrhage is apt to occur.

Should the stone become incarcerated in the ureter, a pyelotomy, or a combination of a nephrotomy and pyelotomy, in case the stone is high up, or a ureterotomy if lower down, is indicated. It may be stated in this latter condition, however, that simple catheterization of the ureter and dilatation of the ureteral orifice, followed by the injection of

sterile olive oil, has often been followed by the expulsion of an impacted stone, and these methods may be tried before resorting to the more radical means.

CONCLUSIONS.

1. Though the presence of renal calculus is most frequently noted between the ages of twenty and thirty years, it is encountered at any age, uric acid infarcts having been found in the newborn.

2. The precipitation of salts in the urine is usually preceded by a catarrh of the renal tubes, brought about by a highly acid condition of the urine.

3. Calculi are more frequently encountered in the right kidney than in the left, owing possibly to its being more freely movable, and stones in kidney and ureter of the same side, and stones in both kidneys and ureters are not infrequent.

4. Pain constitutes the most prominent symptom in the average case, the severity of which depends upon the roughness and movability of the stone, rather than upon its size.

5. The extent of the disease should never be graded by the lack or presence of symptoms of unusual severity, especially pain, as cases are very frequent indeed in which the subjective symptoms are few, or are replaced almost entirely by those of a reflex character, and yet an almost total destruction of the kidney may have taken place.

6. In practically every case blood cells can be found in the urine immediately upon the cessation of the attack of colic.

7. In making a diagnosis of nephrolithiasis, it is necessary to consider several factors, and the positive determination of its existence rests, not only upon the signs presented by the suspected kidney, but also upon those presented by its fellow.

8. Cystoscopy is not indicated in this class of cases, until the diagnostician is positive that the case is not one of renal tuberculosis in which the bladder has not become involved, as it occasionally gives rise to traumatism that is sufficient to act as a predisposing cause of vesical tuberculosis where the bladder was free from involvement before the examination.

9. Care should be exercised not to interpret every obstruction to the free introduction of a ureteral catheter, as a stone, as several other conditions are capable of producing an impediment.

10. It is of prime importance to make it a practice thoroughly to test ureteral catheters before using, and to see that they are washed out immediately afterward.

11. It should be a rule for the physician to see that a röntgenograph is made in every suspicious case.

12. The medical treatment of this condition can only be symptomatic and palliative, but should be given a fair trial unless the case becomes an emergency one.

If I have succeeded in arousing interest in this class of cases, have stimulated the reader to further investigation, and have clearly demonstrated the numerous advantages of applying, not one but several methods of diagnosis, I shall feel that the purpose of this paper has been well accomplished.

685 TRUMBULL AVENUE.

NIGHT TERRORS.*

Etiology and Therapy.

BY ADOLPH STERN, A. B., M. D.,
New York.

The practical application of the knowledge gained from Freud's teachings perhaps nowhere else shows such rapid or such brilliant results as in the treatment of the different manifestations of the neuroses as they occur in children. Stekel thinks that the most common form that exists in children is the anxiety neurosis, and that one of its most commonly observed phases heretofore very difficult to treat, is the night terrors. Night terrors are very properly so called, not only because the child in the attack is a victim of such intense emotion, clearly expressed in his countenance and attitude, but also because these attacks produce anxiety in the other members of the family, and it is through this that the child gains its object—namely to have some one with it at night.

All gradations of anxiety and fear occur—at times the child with a terrified expressions sits up in bed, crying "mother," "mother," "the black man," "the ghost," or merely inarticulate sounds escape its lips. Again the manifestations of anxiety may be very slight and result only in restless sleep or sleeplessness; in other instances the child calls out, "I want a drink of water," "I have a headache," or "I can't sleep." Whatever the symptom may be, they have but one cause—the child wants somebody with it at night.

The causes of pavor nocturnus in brief, as heretofore given in the textbooks, are about as follows: 1. Adenoids and enlarged tonsils, with consequent partial asphyxiation. 2. Large or indigestible meals eaten shortly before going to bed. 3. The telling of harrowing or terrifying stories—like ghost stories. Naturally the treatment has been heretofore administered in accordance with the conceived etiology, and results are disappointing. I must say that in neither of the cases to be detailed have any of the foregoing causes been present, nor have I been able to find them as etiological factors in the other cases under my observation.

Whatever the causes may be, let us see what we have done for these children with the method of treatment based upon a rational conception of the psychology of this condition. I wish to describe first:

CASE I. Mamie H., aged eight years, the youngest of seven children, of markedly neurotic parentage. Mamie was her mother's pet, rarely left her mother's side, had no desire to play with other children; did so only when urged or forced, and then only when accompanied by her mother; cried bitterly when the mother went anywhere without her. The child had always been fed, dressed, and bathed by her mother; and for the past seven or eight weeks before I saw it, the mother had noticed when, in bathing the child, the former's hand came in contact with its genitals, the child pressed the hand between its thighs. Four weeks before I saw little Mamie, which was early in October, 1914, she awoke one night, terrified, crying "mother," "mother," "the boy," "the boy." On that same day Mamie had been to the cemetery and, while watching a coffin being lowered into its grave, had become very much frightened

and begged to be taken home. Since then the night terrors had been continuous.

Freud says that the symptoms of an anxiety neurosis in the young manifest themselves at the first contact with the sexual problem in any of its phases. I have mentioned the fact that the mother noticed that when she washed the child's genitals it held her hand firmly for a short while between its thighs. This we may consider a sexual trauma. Surely we can interpret the child's actions in no other light than a desire to prolong the contact, to prolong a pleasant sensation.

Even though the desire aroused and momentarily satisfied is not consciously recognized by the child as a sexual one, still it was a sexual sensation, because it originated in the genital area. Moreover, it was aroused by the contact of the mother's hand with the child's genitals. In this way a desire of a distinctly sexual nature is aroused in the child and directed toward the mother. This trauma, repeatedly taking place, may in later life give rise to several impulses, which would instinctively be repressed.

First, the erotic desire toward the mother is a desire toward one of the same sex—thus strengthening the homosexual impulse, which is present in every one of us,¹ and laying the basis of a future homosexuality. Secondly, the desire once aroused craves satisfaction, and the child will later satisfy itself. At first perhaps the act of masturbation may be accompanied by fancies reproducing in memory, with accompanying emotion, actual experiences which originally aroused the desire. Later in life, the masturbatory act or the desire thereto is accompanied by these fancies or by some substitute² fancies. But each masturbatory act or desire is unconsciously accompanied by a reproduction, both in action and emotivity, of the experience which originally aroused it. Such accidental contacts as above referred to, are not infrequent causes of masturbatory acts and impulses.

The degree of emotional reaction, expressing itself in the form of shame and self reproach, later in life attaching itself to the act of masturbation, is frequently determined by the original experience. For instance, in this case the fact of the mother being the exciting influence that caused the original psychic trauma with its attendant repressed desires, makes the child the victim of self reproach and shame whenever the masturbatory desire is present; the amount of affect varying with, or being dependent on the original cause—in this case the mother. The delicacy of relationship between parent and child as associated in the mind of the latter, naturally leads to this repressed effect.

Owing to the erotic impulse directed by the patient toward the mother, the former will naturally desire to be in the mother's presence whenever possible with a constancy not to be found in the normal child. This is easily enough accomplished by day

¹Every individual is bisexual—that is, has in him the power of acting the part of both male and female. Society has recognized this by making it immoral to practice homosexuality in order to prevent the extinction of the race.

²On account of the repressed content of the original inciting experiences, the child, desiring to reproduce the pleasurable sensations at first aroused, will call up fancies so disguised that they are not consciously recognized by the patient as originating in or related to the inciting causes, while in reality they are definitely associated with them.

*Read, in abstract, at a meeting of the New York Neurological Society, December 7, 1914.

and the night terrors serve the purpose at night. The incident attended by fright at the cemetery above referred to, is psychologically analogous to the aroused emotion at night in the form of night terrors.

That the child might easily become frightened at the grave is a very possible occurrence, and consciously or unconsciously the child realizes that it will receive sympathy rather than censure for showing terror at the recollection of the cemetery incident. The fact that the mother is a neurotic is a very important consideration. Not that the child will inherit the neurosis, but because the neurosis in the mother represents an unsatisfied emotional state within the parent herself. All the children were growing up; some had already married and "left" the mother, and the rest were soon to go. This was the last child, and the tendency unconsciously would be to cling to this one as long as possible, and keep her a "child"; thus the mother unconsciously by her own acts intensifies the conduct of the child.

Having thus briefly considered the usual etiology in these cases, the therapeutic procedure becomes manifest. To illustrate, in the case cited, the mother was told to arrange that the child sleep in a room by itself; under no consideration was anyone to visit the child during the night terrors—the patient was to be left entirely to herself after going to bed. Furthermore, she was to bathe and dress herself, and was urged to play with other children. The medication given was a placebo—no sedative drugs, which could at best merely lull the flame, not quench it, were administered. For three or four nights the child still called for its mother, but when it learned that the mother would not come to it the little patient quietly adjusted herself and slept.

CASE II. Lola M., aged nine years; night terrors had existed for four years before I saw her. The attacks consisted of restless sleep, of calling during the night "mother" or "a man on the roof" or of its asking for a drink of water or of complaint of some minor ailment. The mother either pacified the patient or took it to her own bed. Little Lola, as in the first case reported, was also in the company of her mother most of the day and played very little with other children; up to the age of five years she was fed by her mother and, even up to the time I saw the patient, she was bathed by her.³ No definite experience or trauma causing the restless sleep could be ascertained because of the long duration of the symptoms. The same procedures were instituted and at the end of two weeks the child slept the night through without awakening.

In addition to the immediate benefits from the relief of the "night terrors" or restless sleep, there results to the children something which I believe is even more valuable. We have seen that the mothers are neurotic and that the children are also neurotic; to my mind, not because they inherit the neurosis, but because the children receive much more emotion (affection) and attention than they normally should. Such mothers keep these children as perpetual dependents, who lean not on themselves but on others for things they themselves should do.

By urging the children to play with others, among whom the child soon learns that it receives only when it gives; by letting them do things for themselves, they are made more social, like normal children; and most important of all they acquire a

spirit of independence. The parents of these children have lost sight of the fact that offspring should be brought up with a view to develop their own individuality and independence.

120 WEST EIGHTY-SIXTH STREET.

THE TREATMENT OF THE SAC IN INGUINAL HERNIA.*

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In the repair of inguinal hernia two principles underlie the operation: 1. Closure of the sac at the internal ring and, 2, the formation of a new anterior wall for the inguinal canal. In other words, the basic considerations are, first, to restore the continuity of the peritoneum at the neck of the sac, and, second, to construct a barrier which shall act as a restraining wall against the protrusion of any viscus beyond the confines of the abdominal cavity. The first of these principles alone will be considered in this paper.

In the Bassini operation the sac is thoroughly dissected and closed off at the neck. This closure is effected either by transfixion and ligation or by suture which may be intrasaccular or extrasaccular. In the Halstead operation, the stump of the dissected sac is brought beneath the fibres of the internal oblique to which it is anchored. In the MacEwen method the sac is freed, puckered upon itself, and applied as a buttress at the site of the internal ring. In Kocher's operation the sac is thoroughly dissected, twisted upon itself, and brought out through an opening in the external oblique to which it is sutured. The last two methods contemplate the use of the redundant sac as an additional barrier to the abdominal pressure. It has been pointed out by von Bergmann that in the MacEwen operation the folded pad undergoes complete absorption. It would be natural from the preceding statement to conclude that the same absorption takes place in the event of the sac being disposed of as in Kocher's method, since it is apparent that the portion of the sac distal to any closure represents a functionless tube which loses its identity as a peritoneal prolongation and becomes disintegrated or absorbed. Based on this conception of the distal portion of the sac, various operators have suggested simple ways of disposing of the sac *in situ*.

Herring has described an operation which he has employed in children. In this method the sac is widely opened, the peritoneal coat is circumcised at the neck, and the cut edges are sutured. The sac receives no further attention. Scudder makes a careful and complete isolation of the neck of the sac in its whole circumference. The sac is divided transversely down to the cord and its vessels; the proximal part is isolated from the cord and the abdominal muscles (internal oblique and conjoint tendon), in order to facilitate the placing of the peritoneal suture which is applied after the method of the buttonhole stitch. The distal portion of the sac (scrotal part), if such exists, is disregarded ex-

*Such methods of bringing up are by no means unusual and lead to harm, as I have tried to show.

*Read before a meeting of the Benjamin Rush Medical Society, 1914.

cept to curette gently or to wipe over the inner surface with gauze. A similar procedure has been employed by H. M. Silver and by Koenig. H. P. Jack has described a case in which he employed a novel and original technic. Jack's operation is detailed in the following quotation: "I passed a pursestring suture of fine silk inside the sac, including a few of the larger veins. This suture was tightly tied, the ends left long, rethreaded, and each one passed deeply beneath the internal oblique as in the Johns Hopkins operation, thus drawing the neck of the sac upward into the abdomen. Mattress sutures of fine silk were now passed back and forth through the sac close to the cord and catching lightly the muscular tissues on either side. Three rows of these sutures were then inserted, closing the sac from the fundus to the internal ring. The redundant portion of the fundus of the sac was now sewed by one strong mattress suture of chromic gut to the closed portion of the internal ring, thus doubling the sac on itself and burying the silk sutures inside the sac. As the mattress sutures were placed through the cremaster and internal oblique, the closed sac was caught in each suture."

In the *American Journal of Surgery* for January, 1909, the author published a paper on A Modified Operation for Inguinal Hernia. The paper was inspired by an experience with a limited number of cases, the first of which had been operated in three years previously. A continued experience with this operation has left the conviction that the principle embodied in the modification is well founded and that it has served advantageously to simplify the methods previously described. The following is the author's technic: The skin and superficial fascia are divided by the usual incision. The aponeurosis of the external oblique is divided parallel with its fibres from the internal to the external ring, and the sac with its intimate coverings is revealed. An incision is made in the longitudinal axis of the sac and its contents are returned to the abdominal cavity. The interior of the sac is now rubbed with gauze or is scarified with the point of a needle or knife preparatory to "suture obliteration." Closure of the sac at the internal ring is effected by a pursestring suture of catgut placed well within its lumen. Traction on the walls of the sac will insure the placing of the suture sufficiently high to prevent any outward bulging of the peritoneum at this situation. This pursestring suture included only the peritoneal portion of the sac, contiguous structures being carefully avoided. The suture having been tied, a continuous suture of catgut is placed at right angles to the long axis of the sac and extends to the fundus. The final step in the obliteration of the sac is accomplished by means of a running suture, which approximates the edges of the incision which revealed its interior. My further experience has prompted me to omit this final suture, since it has been found to be superfluous, provided that each unit of the intrasaccular suture is begun and ended close to the incisional margin. After disposal of the sac as described, the formation of a new anterior wall is effected in the usual manner by sewing with interrupted suture of kangaroo tendon the lower border of the internal oblique-transversalis muscle and conjoined tendon to the sharp shelving border of Pou-

part's ligament. The cord and its structures are permitted to repose beneath this new anterior wall, and necessarily so, since there has been no dissection of the sac. As a final step, the aponeurosis of the external oblique is sutured with plain catgut and the skin with fine silk.

A summary of the foregoing methods of dealing with the sac permits us to classify the various treatments under the following heads: 1. Dissection, resection and closure at the internal ring. 2. Dissection, closure at the neck, and displacement of the redundant portion. 3. Dissection, resection, and closure with displacement of the stump. 4. Complete dissection of the neck of the sac, closure with distal portion left *in situ*. 5. Disposal of sac by intrasaccular suture, displacement of neck, reduplication of distal portion. 6. Suture obliteration with sac left *in situ*. A consideration of these various procedures presents the obvious fact that there are various concepts as regards the technic in the disposal of the sac. In conjunction with this fact it would be accurate to say that complete ablation of the sac is the method most generally employed. The opinion, however, is ventured that this latter procedure has continued in practice because custom has sanctioned it and because it has been difficult to depart from an inheritance so firmly established. Nevertheless, it is apparent that there has been a tendency toward seeking a method which is effectual yet without the trauma incident to complete dissection of the sac. A given technic in the experience of individual operators gives fairly constant results. But recurrences are occasionally to be expected after any technic when one has to deal with a flabby or deficient musculature. In the statistics of operators whose cases are numbered among the young and robust, recurrences are reported in less than one per cent. of instances. In the collected statistics of various operators the end results are less striking, when there are noted recurrences in about five to five and one half per cent. This discrepancy in results would appear to the writer to find at least partial explanation in the license for wide dissection which the usual ablation of the sac entails. This explanation would likewise serve to interpret the origin of the sometime annoying complication of infection and its corollary, recurrence. There is often, it is believed, in operative work, a confusion between anatomical dissection and surgical dissection. A complete anatomical dissection is rarely a necessary element in most surgical procedures, but that an intimate knowledge of anatomy is most essential cannot be controverted. A less intimate knowledge of the anatomy of the part or the purpose to effect a particular detail of a given technic are compelling factors for a complete dissection. The feeling of assurance secured through the advantages of modern methods of general anesthesia and of asepsis has contributed in no small degree to minimize a proper regard of the principles of tissue physiology and tissue preservation. The inguinal canal has been a much abused field in the repair of hernia, and it has become a conviction of the writer that the dissection of the sac has no anatomical, mechanical, or surgical advantage. Traumatized tissues become devitalized tissues, which exhibit lessened reparative processes originally inherent

The habit of isolating every structure by so called dissection of the anatomical laboratory has but little place in the technic for the repair of inguinal hernia. The operation which approaches the ideal is the one in which every manipulation is calculated to play an important part in the end to be attained. The prevailing technic of effecting closure of the sac at the internal ring the writer considers superfluous at the cost often of inviting unfavorable complications both immediate and remote.

In summarizing what the author considers the advantages of suture obliteration of the sac, the following points are mentioned: 1. Lessened time of the operation as a whole; 2, diminished period of narcosis; 3, elimination of tissue bruising; 4, preservation of nerve distribution; 5, minimizing of venous oozing; 6, no manipulation of the cord or of the testicle; 7, absence of postoperative pain, with special reference to the testicle and cord. My experience with this method has been concerned with 109 cases operated in up to October, 1913. I regret to state that by reason of the inability to trace all of these cases, I am unable to give complete numerical facts regarding their final histories. However, through the kindly interest of the various members of the house staff of Gouverneur Hospital; where most of the patients were operated on, it can be stated that a review of the histories of all the cases of recurrent hernias admitted to the hospital during the past five years, shows that among such admissions and recurrences, there has not been a single case giving a previous history of suture obliteration. This observation furnishes no statistical information, but it is nevertheless significant. It may also be stated that in conjunction with the efforts of the house staff and a number of the dispensary physicians, and through personal efforts, no recurrences have been noted in fifty cases which we were able to trace. The postoperative history of these cases varies in extent from seven months to five years.

The following circumstances are to be noted in three other cases. Recently a patient has appeared who reports a recurrence after an exacerbation of an asthmatic attack. Although this case has been recorded as one of recurrence, it has been a satisfaction to note that the present condition is one of bubonocoele, whereas the original condition was one of a large scrotal hernia. The operation was performed in May, 1910. I would emphasize the fact that the herniotomy was performed under adverse conditions in that the pulmonary complication primarily militated against the certainty of a permanent cure. Another circumstance has come to my attention through a letter received in answer to a personal inquiry of a patient operated upon in February, 1912. The patient writes to the effect that he has a small lump in his side. This information I have likewise recorded as a recurrence, although it has not been verified by examination. The only complication to be recorded occurred in a case in which I operated in August, 1913. Twelve days after operation there appeared a hydrocele, which was operated upon without recurrence. Through personal communications I am informed that this simplified technic is being employed by a number of operators. Dr. James T. Gorton, of Yonkers, reports to me forty-two cases operated in after this

method. He states that fifteen months after operation a huckster returned to the hospital after having done some heavy lifting. The house surgeon noticed a small swelling at the external ring, which disappeared during the manipulation incident to examination. This swelling could not be found at a subsequent examination. In one other case Gorton reports a frank recurrence shortly after operation, in a man whose musculature at the time of operation occasioned comment to the effect that a recurrence might be anticipated. No other recurrences and no complications have been noted by Gorton. The late Doctor Coggeshall, of Boston, in a personal communication, stated that he had been employing the author's method in his operations for hernia. Statistics of this operator have not been available. Doctor Elkourie, of Birmingham, Alabama, reported in the *Southern Medical Journal* for April, 1912, twenty-two cases without recurrence treated with nonremoval of the sac with suture, practically after the method of suture obliteration.

In conclusion, I wish to say that although my experience has permitted me to become familiar with a special technic, I would emphasize a principle rather than a particular operation, believing as I do that there has been suggested a number of operations which make for progress and simplicity.

104 EAST THIRTY-FIRST STREET.

PROPER FACTORY VENTILATION AND ITS EFFECTS ON THE WORKER.

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The atmosphere in a building where a great number of people perform more or less laborious work for eight hours a day becomes largely contaminated with carbon monoxide and dioxide and other impurities from the increased exhalation and oxidation of the tissues of the body. These combustion products, by changing the chemical composition of the air or by increasing the temperature and humidity of the room in which the worker is confined, have a marked deleterious effect on his physical condition. His resisting power is lowered and he becomes a prey to all kinds of infectious diseases. Beside being a direct or indirect cause of occupational diseases, an ill ventilated room renders the employee less active, and his productive capacity becomes considerably reduced, thus engendering a great loss in economy to the employer.

It is, therefore, clearly seen that the necessity for supplying the worker with plenty of fresh air and providing him with a wholesome environment becomes imperative from the humane as well as from the economic standpoint. Window ventilation, while furnishing a sufficient supply of air to meet the demand, is an impracticable method of ventilation in a modern manufacturing establishment for the following reasons:

1. A number of machines are installed in close proximity to the windows, and an employee operating one of these would bitterly object to having the air strike his body and thus predispose him to colds and rheumatic pains.

2. The outside air carries a great number of impurities and foreign substances.
3. The air becomes objectionable during inclement weather.
4. Strong currents of air, which must necessarily result from having windows opened on both sides of the work room, will displace the work.
5. Inability properly to regulate the temperature of the room during the various seasons of the year.

The heating problem, however, for lack of space, will be omitted for the present.

In the new building for the Bureau of Engraving and Printing—a colossal structure with all modern improvements—a system has been installed which may be considered highly scientific and efficient. Plenty of fresh, pure air is distributed to every part of the building by means of fans and a ramification of ducts. The accompanying diagram clearly dem-

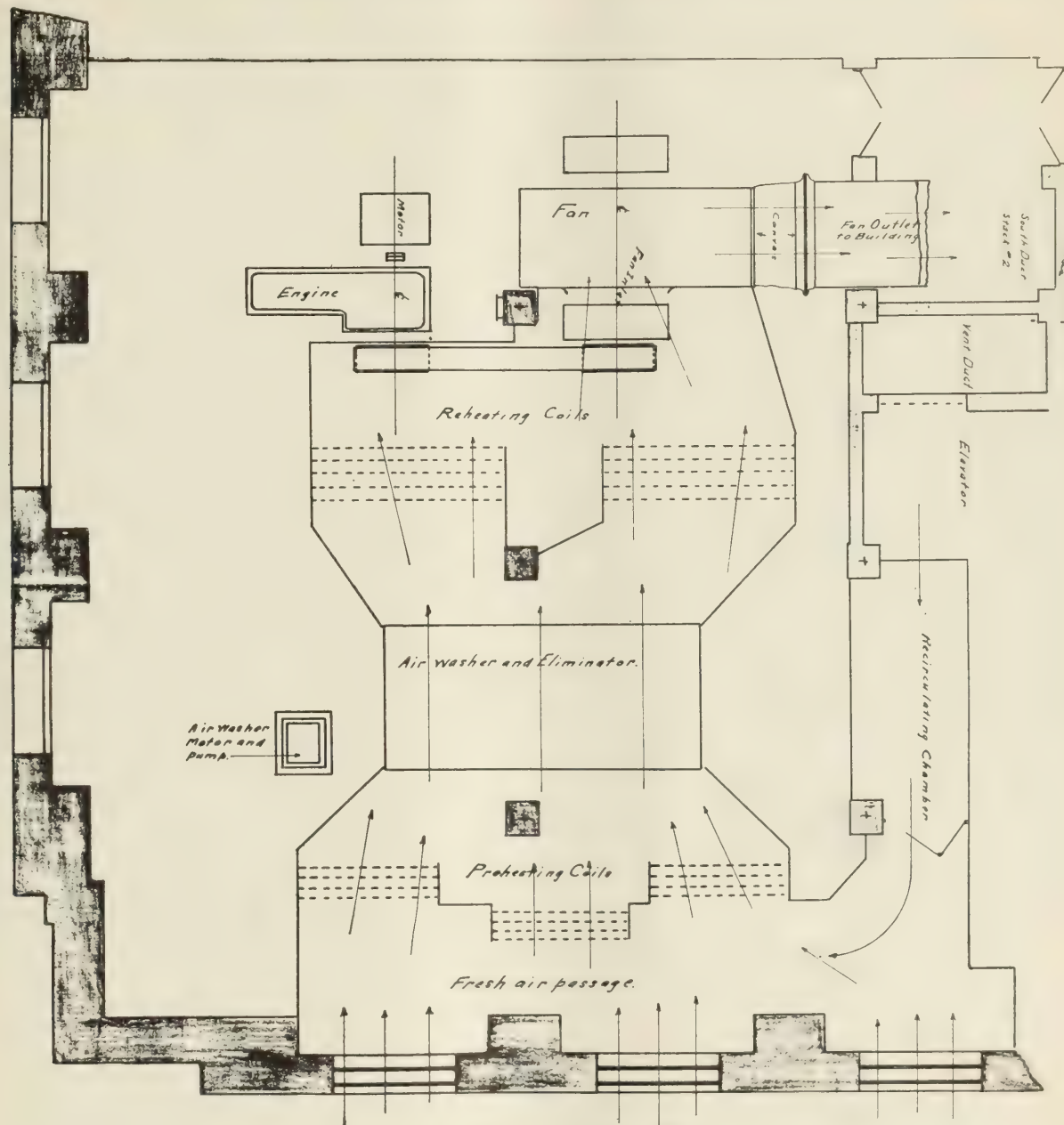


FIG.—Diagram of the ventilation system.

It becomes necessary, therefore, to install a system of ventilation which will overcome all these objectionable features and at the same time supply a sufficient amount of fresh air to all employees. In considering an effective system of ventilation, we must not lose sight of the fact that there must also be an adequate heating system. Overheated or underheated work rooms form just as undesirable and unwholesome an environment as ill ventilated rooms.

onstrates the system. The air enters chamber A, then passes through preheating coils where it is raised to a certain temperature which is regulated according to weather conditions. Entering chamber B, the air is washed by a rain storm, all solid impurities are removed, and eliminators remove the excessive moisture and add proper humidity. It is finally reheated by passing through another set of coils and is then ready for distribution throughout the building.

To limit contamination of air from intrinsic factors, electric heaters were substituted for the gas heaters used in the old building to warm the plates. For the sake of those who are not familiar with the occupation of plate printing, I wish to say that it is necessary to place the plate on a stove to be heated at the time it receives the ink, so that the ink spreads evenly and makes a good impression. If one stops to consider that some of our rooms have as many as 150 presses, and hence the same number of stoves, one will readily appreciate the amount of contamination such rooms will receive and what an unwholesome place it would become for a worker to perform his routine work, especially during the hot season of the year. Fortunately this evil has been remedied through the successful efforts of Director Joseph E. Ralph in securing an appropriation for the purpose of installing electric stoves. To remove such impurities and gases as still collect in the rooms, however, another system of fans has been installed on the roof, and these are provided with a separate system of ducts which register at the ceiling and floor. To render the ventilation system absolutely effective, it is, of course, understood that all windows remain tightly closed. As a final measure, air washers, which deodorize the air, have been installed in those divisions where there are strong odors due to the character of the work.

The results of the installation of the new system of ventilation show a marked improvement in the health and vigor of the employees. I am informed by some of the superintendents of the printing division that the quality as well as the quantity of the work has improved considerably. There is also a marked diminution in the number of cases of minor ailments whose chief cause is attributable to poor ventilation. To illustrate, I will merely mention the fact that in 1913, when we were in the old building where the ventilation was very defective, we reported as many as 2,000 employees who applied for the treatment of headache. Since we moved into the new building these cases of headache have fallen off to practically half that number.

I wish to express my indebtedness to Mr. R. H. Chappell, Chief of Engineering and Machine Division of this Bureau, for furnishing the diagram of the ventilation system.

CEREBRAL HEMIPLEGIA, A SEQUELA OF DIPHTHERIA.

By E. MURRAY AUER, M. D.,
Skillman, N. J.

(*New Jersey State Village for Epileptics.*)

Of the sequelæ of diphtheria, involvement of the nervous system is by far the most important. This involvement may either be direct, as in the neuritic manifestations, or secondary, as in disease of the central nervous system due to disturbed vascular conditions producing embolism, thrombosis, and hemorrhagic encephalitis. Embolism in malignant diphtheria has also been described as occurring in the kidneys, spleen, lungs, and abdominal aorta. Cerebral hemiplegia following diphtheria, compared with the frequency of the latter disease, is rare.

This may be accounted for by an attenuation of the malignancy of the disease by antitoxin treatment and the failure to report observed cases.

Slawyk (1), writing in 1898, was able at that time to collect only fifty cases. From his observation he stated that complete recovery was rare, contractures and atrophy usually supervening in the paralyzed side. Humphry (2), in 1911, reported the case of a boy, aged eleven years, who seventeen days after the onset of diphtheria manifested a left hemiplegia associated with external strabismus and defective vision of the right eye. There was some improvement. He ascribed the lesion to a clot obstructing the ophthalmic branch of the Sylvian artery. Rolleston (3), from a study of 9,075 completed cases of diphtheria extending over a period of thirteen years, described six personal cases. Leede (4), of 6,300 cases of diphtheria collected over a period of four years, observed only four patients with hemiplegia, of which three cases were fatal. His finding at necropsy in these three cases were, respectively, cardiac thrombi and cerebral softening; fatty degeneration of the heart and no macroscopical lesion of the brain; softening of the left corpus striatum, optic thalamus and subthalamic region. Halle (5) at an autopsy performed on a girl aged three and a half years, who three days after the appearance of diphtheria acquired a right hemiplegia and aphasia and died one and a half month after the onset of the disease, found an area of softening, probably of embolic origin, in the posterior two fifths of the putamen. Mollet (6), in a thesis on the subject, contributed three more cases: That of a girl aged eleven years who, twenty-one days after the onset of the disease, had a left hemiplegia from which there was some improvement; the second case that of a boy aged six years, who fourteen days after the onset of diphtheria, exhibited a right hemiplegia and aphasia; there was improvement of the aphasic condition and persistence of a flaccid hemiplegia; the third case that of a boy aged three and a half years, who on the thirty-third day of the disease showed left hemiplegia. The patient died of an intercurrent disease and the necropsy records were lost.

In the cases reported with autopsy, embolism was the most frequent finding, others were thrombosis, hemorrhage, and sclerotic atrophy. Sarteschi (7), in a study of the brains of five children dead of diphtheria, described an abundance of fatty substances around the bloodvessels, either in the form of masses of free fat or as an accumulation of granulofatty cells; a scarcity and often complete absence of nerve substances in the protoplasm of the nerve cells and neuroglia; severe lesions in the majority of the nerve cells of the cortex and cerebellum and less severe lesions in the cells of the cord; changes, chiefly of a progressive type, in the neuroglia; presence of substances due to basophilic melachromatic changes, and a complete absence of perivascular infiltration and parenchymatous hemorrhages.

From the cases reported one may observe that cerebral hemiplegia occurred most frequently in malignant cases during the third week of the disease and was usually fatal. It was, in the greater number of cases, of the right side, and associated with the hemiplegia had been described hemichorea, athetosis, and idiocy. In the following case, of interest is the

occurrence of epileptic convulsions and mental disturbances with cerebral hemiplegia of diphtheritic origin.

CASE. E. W., born April 9, 1887, under normal conditions so far as can be ascertained. In the family history there is nothing of note. During childhood, she was "puny," but developed as the average child. At the age of ten years, she was attacked with a severe faucial diphtheria and antitoxin was given. During the course of the disease, she manifested—the exact time could not be ascertained—a right sided hemiplegia and aphasia. After several weeks the aphasic condition disappeared, the hemiplegia improved, and she was able to walk without assistance. Shortly after, she had her first convulsion. Since then she had convulsions at varying intervals, never exceeding two in twenty-four hours, and markedly deteriorated mentally.

Examination of this patient at the present time shows a small, well nourished, excessively polite, bashful young woman. The right arm is held close to her side and there is contracture of the wrist. In walking she describes a semicircle with the right lower limb. There is no Romberg sign. She moves the brows and closes the eyes equally well. The right corner of the mouth is lower than the left and the left nasolabial fold is deeper than the right. The lower left side of the face is moved decidedly better than the right. Extraocular movements are normal. There is no nystagmus and no contracture of the visual fields. There is pronounced tremor of the lids on closing the eyes. The pupillary reaction to light and accommodation is prompt. There is no defect of hearing. The uvula moves in the median line and the tongue is protruded straight in the median line, exhibiting marked tremor, but no atrophy. There is no dysphagia, dysphonia, or aphasia. The right upper limb shows some retarded development and some atrophy, most pronounced in the hand and fingers. There is contracture in flexion of the wrist. All movements of the shoulder and elbow are possible and synergic. The triceps and biceps reflexes are exaggerated on the right side. The lower limb exhibits retarded development. All movements of the limb are possible, although the power of flexion of the foot on the ankle is diminished. The knee jerk and Achilles jerk are exaggerated on the right side. On the right side there is a positive Babinski, abortive ankle clonus, and doubtful Oppenheim. Corneal, lacrymal, pharyngeal, and umbilical reflexes are present. The patient feels light touch and pin point equally well on both sides of the body, localizes correctly, and differentiates head and point of a pin, heat and cold. Senses of motion and position are normal. There is no disturbance of the stereognostic sense on the left side; the right side could not be tested. She is only partially oriented and her school knowledge is poorly retained. Her memory for recent and remote events is decidedly impaired. She has auditory and visual hallucinations, mild ideas of persecution, and vague ideas of being "doped." At times she displays emotionalism; she is not resistive or impulsive and has no ideas of influence. At times, previous to the onset of her convulsions, she has a choking sensation in the throat. The attacks are grand mal in character and generalized. She has injured herself and soiled her clothing during the convulsions. They are of both nocturnal and diurnal occurrence and are usually most frequent at the time of her menses.

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A POSSIBLE NEW TEST FOR CEREBRO-SPINAL FLUID.

A Preliminary Trial.

By B. LEMCHEN, M. D.,
Dunning, Ill.

While we have already good reliable tests of cerebrospinal fluid, still further investigation in that line seems to be desirable, as all the tests we have at hand have some objectionable features, either owing to the complexity of the test so that a physician in an ordinary laboratory cannot apply it, or to its lack of delicacy. Personally I have been experimenting with one of the old reliable tests for albumin, namely, picric acid; as is well known, picric acid in acid media will precipitate all the albumins, while in alkaline media it will precipitate only the higher albumins.

It appeared to me that we ought to be able to alkalize the spinal fluid so as only when the albumins in the fluid are abnormal will the test be effective. Experimenting in that line, I take 0.5 c. c. of spinal fluid and add an equal amount of thirty per cent. of normal sodium hydroxide, mixing the two fluids well together and adding a layer of an equal amount of a saturated solution of picric acid in water, so that the picric acid comes in contact with the fluid only. A little above the contact we get a white flocculent precipitate. Experimenting with over a hundred spinal fluids, I can state almost definitely that when the cerebrospinal fluid is not from a person suffering from an organic brain disease, no precipitate will form. It may form a darker color between the junction of the acid and the fluid, but there will be no precipitate above the junction. While the majority of the cases in which I obtained the precipitate by applying the test were those of patients suffering from general paralysis of the insane, I do not go so far as to state that this test is a definite one for that disease, but I believe this: By gradually varying the strength of the sodium hydroxide solution, we may arrive at a specific test for the different forms of organic brain disease.

CHICAGO STATE HOSPITAL.

Correspondence.

LETTER FROM PARIS.

A trip to Juilly.—Branch hospital in an old seminary.—Treatment of compound fracture by heliotherapy.—New method of localizing projectiles in wounds.—New traction splint.—Graveyard on the site of the battle of the Ourcq.—Pictures of desolation.

PARIS, FRANCE, April 23, 1915

Owing to the kindness of Doctor Blake, an opportunity to see the new branch hospital at Juilly was given me. Professor Dastre, president of the

Société de biologie, and Doctor Weimberg were the other members of the party. The presence of several cases of gas gangrene at the new hospital, and the occasion they afforded for a demonstration of the efficacy of the new serum prepared by Doctor Weimberg, was the *raison d'être* of the trip.

The trip from the gare du Nord to the branch hospital at Juilly was an uneventful one, except for a punctured tire and an occasional shower of mud. We reached Juilly one hour after we had left the gare, arriving about half past ten o'clock. The hospital is situated on the outskirts of a little village which seems the most peaceful place imaginable. Except for the frequent appearance of men clad in the now well known uniform of France, we might have imagined ourselves motoring through the France of yore; but that was impossible. The evidences of inactivity on each side, the scarcity of young men, the almost deathlike stillness that pervaded numerous villages that we passed through, pointed to the excessive jar the peaceful machinery of France had been subjected to. At one time we stopped where it would have been necessary to pass with a *laissez-passer* given by the most prominent military authorities. The khaki uniform of the American Ambulance, the magic words *Ambulance américaine No. 93* were sufficient password. With but a casual glance at the slip of paper, we were permitted to pass through, the sentry almost salaaming.

The hospital at Juilly is a sixteenth century building, used for a long time as a Roman Catholic seminary, but even before the war it had been partially condemned owing to its inadequacy for educational purposes. Mrs. Whitney's offer came at a time when very few buildings which were suitable had not already been converted into reserve hospitals. This was the only one available. It was taken possession of by the American contingent, of which Doctor Martin was in charge, and in less than two months' time had been transformed into what I can definitely say is the most comfortable reserve military hospital in France. Needless to say that the task was a very costly one. The building, erected when France was at the height of her glory, had been intended to withstand a siege, if necessary, and it was quite an undertaking to install modern plumbing and modern heating appliances. This was finally accomplished, however, and today the hospital is in a position to take care of 250 wounded soldiers, and as well as possible. The comforts of the Lycée Pasteur are not to be had at Juilly, but naturally a twentieth century building and a sixteenth century one are not to be compared, and American ingenuity and American money have made possible twentieth century medical measures in the latter as well as in the former—a feat to be proud of.

The American contingent there today consists of Doctor Lyall, Doctor Sutton, Doctor Hervey, Doctor Clarke, and Doctor Mixter. Doctor Lyall, visiting surgeon at Roosevelt and St. Luke's hospitals, is in full charge of the hospital at Juilly. Extreme antiquity is the predominant note of the place, but its godliness is accentuated by its extreme cleanliness. It could not have been an easy task to convert

the large rooms into wards, and still more difficult to install the x ray outfit, the pharmacy, and the laboratory. The laboratory is sufficiently complete for all clinical methods of research. The pharmacy is also used as an outpatient department for the indigent members of the village community.

In the wards the same type of patient as at the Lycée Pasteur was to be seen. One patient had had a badly compounded fracture of the right femur, and was being treated with the Steinmann splint. The splint had been inserted through the condyles of the femur with a traction of twelve pounds. The fragments of the femur, despite four weeks with no attempt at replacement, were in perfect apposition. Several cases of gas gangrene infection had been treated by multiple incisions, followed by washing out with peroxide of hydrogen and almost immediate exposure to the sun. This form of therapy is of easy access at Juilly, where the sun is particularly intense for a number of hours of the day. The wounds had healed with rapidity. One case had very extensive scarring, with no limitation of motion, however. Another case, in which the infection had complicated a very extensive wound of the thigh, had been treated in similar fashion. The large granulating wound had had several skin grafts inserted. Some of these had been removed from the opposite limb and had taken beautifully; a few small strips of heterogenous skin (i. e., taken from another soldier who had volunteered) had not taken so well and could with facility be distinguished by its pale, anemic look. Judy O'Grady and the Colonel's Lady are not always sisters under their skins.

Doctor Sutton demonstrated to the assembled savants an ingenious method for localization of foreign bodies. This method, originally suggested by an English surgeon for the removal of bullets from the brain, was applied to foreign bodies situated in other parts of the body. The instruments consisted of a trocar and cannula which were inserted under the radioscopic screen until the point of the trocar came into contact with the projectile. A small bit of piano wire was then introduced, slightly curved at its extremity, wire kept in place and trocar removed. The wire was then cut off close to the surface of the skin, a dressing applied, and later, when the part affected was operated on, served as an excellent guide to the position of the bullet; a very ingenious method for what is at times a very difficult operation.

Doctor Lyall demonstrated a simple apparatus which permitted the use of less traction on a fractured limb. Its essential principle was based on the fact that it needed only one third of the traction to keep in place a fractured limb when flexed that it took to immobilize the same limb in the extended position. This has been adopted at the larger ambulance in Neuilly with satisfactory results.

After an extended visit over the building and an inspection of the grounds (not a very delightful task owing to the *vilain temps* it was our misfortune to encounter) the party set off for the battlefield of the Marne, only a stone's throw from the ambulance. It is a wise general who paves the way for retreat when victory is in sight. The French have

developed wise generals. Despite the fact that the German troops are held at a very safe distance from the former battlefield of the Marne, the French general staff has not neglected to take proper precautions. Trenches, practical as well as comfortable, have replaced the former hastily constructed grooves. The ground, however, showed no signs of the terrific struggles which had taken place. The products of the earth apparently needed no better nourishment than human blood, for nothing could look more fertile than the fields we passed by. The villages that we encountered had a much less peaceful look. On each side were houses showing evidences of the terrible fire to which they had been exposed. In many of them were new bits of roofing mingled with old shingles that had done duty for many a generation. Holes in the walls produced by shrapnel had been hastily patched, without, however, obliterating the scars.

The church is evidently always a second thought, for while the houses had practically all been put back into a state of usefulness, the church remained as an everlasting monument to humanity's backsliding. The steeple was represented by a few bits of stone. The walls of the church looked like some ancient ruin. The entrance to the interior was blocked by a huge mass of débris and a large bronze bell. The disfigured picture of some sacred scene was all that was left of the altar. The nave was likewise a litter of stones and dirt. In the lust of war nothing is holy, except cannon and other engines of destruction. Behind the church, a short distance from the village, is a rough monument that has hastily been put up to those who fell in the battle of the Ourcq in the early days of September, where two regiments of tirailleurs had been completely annihilated. This monument and the few roughly constructed crosses were all that remained to remind the world that the brave tirailleurs had once lived. Further on the ground was strewn with crosses. What had been a battlefield now looked like a boundless cemetery, in which the hopes of Germany had been buried as well as the hopes of many a sorrowing mother of France. Occasionally a more pretentious cross was to be seen, surrounded, perhaps, by a wreath of flowers with some inscription—*Mort pour la patrie*. Close by, a cemetery was visible which had been the scene of a terrific action, now forming the last resting place of many a tirailleur. A few Germans likewise had been buried there; the name of Schmidt seemed a bit incongruous, but surely these men were nearer in death than they had ever been in life.

We retraced our steps, stopping now and then to see some serpentine line of trenches. Modern warfare has converted man into a burrowing animal. It is not to be wondered at, therefore, that the infections of this war are the infections produced by the bacillary inhabitants of the earth. On every side were graves, each bearing testimony to the awful effects of high power projectiles on men engaged in trench warfare. How much more progress there is still to be made to enable us to fight our natural enemies as well as we fight our enemies of choice, the mortality of the past few months has sufficiently demonstrated. BENJAMIN JABLONS.

Therapeutic Notes.

Exploratory Puncture as a Curative Measure in Gynecology.—N. M. Kakuschkin, in *Semana médicale* for July 29, 1914, it is stated, has been favorably impressed with the effects of puncture in the posterior vault of the vagina not only in cases in which seropurulent material has collected in the cul-de-sac of Douglas and in certain suppurative conditions of the uterine annexa, but also in cases with plastic periuterine exudates, where the puncture proved practically negative, a small amount of blood alone issuing from the needle. In spite of the apparent lack of success of the puncture, Kakuschkin frequently noted a fall in temperature, followed by prompt recovery, after it had been performed. The cases responding best to this procedure were those of long standing infection, with extensive adhesions and solid exudates. In cases with accumulation of pure blood or recent suppurative infection, on the other hand, a rise of temperature was sometimes noted, and due caution in the use of the measure is therefore enjoined in such cases. The benefit accruing in the favorable cases is ascribed by the author to reduction of pressure through the removal of a certain quantity of fluid, circulation being thereby facilitated in tissues previously subject to marked tension, and also to the hyperemia secondary to the operative trauma, absorption of the exudates being thus facilitated. The puncture was performed in the usual way, with an aspirating syringe and long needles, curved where necessary, which were introduced through the posterior vaginal cul-de-sac with the finger as guide. The pain lasts but a short time, and only in very nervous women with narrow vaginas is general anesthesia required. [The dangers of such treatment will be noted.—Eds.]

Diathermia in Vesical Hemorrhage.—Iredell and Thompson, in the *Lancet* for May 16, 1914, referring to the treatment of hematuria in cases of inoperable carcinoma of the bladder, state that, whatever effect treatment by diathermia may have on the growth itself, there can be no doubt as to its effect on the hemorrhage in certain cases. In four cases which the authors thus treated they succeeded in arresting severe hemorrhage for months. As the treatment can be carried out with no more discomfort to the patient than the introduction of an ordinary catheter, passed most gently and with strict aseptic precautions, the method is likely to prove a distinct advance on those so far regularly employed.

Calcium Chloride in the Treatment of Erysipelas.—S. Kawakami, in the *Sei-I-Kwai Medical Journal* for April 10, 1914, reports thirty cases of erysipelas treated by injection of five to twelve drams (20 to 50 c. c.) of a one per cent. solution of calcium chloride. After an injection the patient generally felt warm and in rare instances experienced temporary palpitation. At times there were sweating, fever, thirst, and general weakness for a few hours. The local condition, however, markedly improved, or at least, the progress of the disease became slower and a tendency toward speedy recovery was noted.

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DISINFECTION BY FUMIGATION.

In former years, when the medium of infection in infectious diseases was vaguely designated, for want of a more specific term, as "contagious effluvia," fumigation of the premises and fomites where cases of infectious disease had occurred was practised in a desultory way; but after the bacterial origin of such diseases had been established, much greater stress was laid upon the extreme importance of fumigation, and everywhere the attempt was made to carry it out as thoroughly as possible. No doubt was felt as to either its necessity or its efficacy in preventing the spread of disease. In the course of time, however, the impression began to gain ground that the evidence was inconclusive, and at present the opinion appears to be general among scientific authorities that routine fumigation is ineffective and unnecessary; it does not destroy disease germs, and contagion disappears from the premises by the time the patient has recovered. The most important testimony in connection with this subject is the personal experience of practical sanitarians, rather than theoretical deductions, and probably no opinion is of greater weight than that of Dr. A. H. Doty, whose many years of efficient service as health officer of the port of New York certainly entitle him to speak with authority. At first he believed, with others, that there was sufficient evidence to support the fomites

theory, but as his knowledge of infectious diseases extended, proof of its fallacy steadily increased.

The New York department of health has right-fully won for itself the reputation of constantly keeping abreast with the scientific developments of the times, and from its reports we learn that as long ago as 1911, Doctor Biggs, then medical officer of the department, who had become convinced of the correctness of the newer view, presented a report in which he recommended the discontinuance of terminal fumigation after diphtheria and measles; and in October, 1914, it was decided to discontinue such fumigation after any case of infectious disease except smallpox, in the boroughs of the Bronx, Queens, and Richmond. After the termination of such a case the district nurses were to give instructions for the proper cleansing of the premises, it being recognized that repapering or repainting of walls, repairing of woodwork, and thorough cleaning of the floors constitute the most efficient means of disinfecting an apartment. Encouraged by the satisfactory results, the department this year added Manhattan to the list of exempt boroughs, while fumigation was retained in Brooklyn, as it was believed that the best way of testing the value of the procedure would be by comparison.

As to some of the practical results of this experimental test, although the time is too short for definite conclusions, they are certainly suggestive and encouraging. In Manhattan there were reported in March, 1914, 1,608 cases of measles, with fifty-three deaths, and in March, 1915, in the absence of fumigation, 1,357 cases, with fifteen deaths. In Brooklyn, with fumigation continued, 1,652 cases of measles were reported in March, 1915, against 1,413 in March, 1914. The significance of these figures becomes apparent when it is learned that in the city as a whole, including fumigated and nonfumigated districts, the number of cases of measles from January to April exceeded the corresponding number in 1914, was about the same as in 1913, and was much smaller than in the corresponding period of 1912. A comparison of the morbidity rates in Brooklyn for the whole year 1915 with those of former years will enable one to determine whether any rise or fall in the morbidity in the other boroughs is due to the discontinuance of fumigation, or would have occurred under any circumstances.

DIFFICULTIES OF SEX TEACHING.

A prize is being offered by a large insurance company for an educational pamphlet on sex matters, to be distributed among young girls and boys. That an insurance company should pay out a good fee to this end is significant, but more significant is the

offer at this time when the wave of agitation for instruction in the mysteries of sex has reached its height and is already declining, leaving on the shore an extraordinary collection of literature for the immaturely minded of all ages. Not only is the number of books large, but the writers have done their very best, and yet none of them seems to meet the needs as this prize offerer sees them. The mystery of the coming of life is a fascinating one, and if the curiosity was of a purely objective character, it would be easy enough to satisfy it, and pamphlets on sex subjects would receive no prizes. The mystery and curiosity, however, are unfortunately subjective and practical as well as objective and theoretical, and this is where the hitch comes. A pamphlet which will satisfy the craving for knowledge and at the same time curb the subjective inclinations, indeed deserves a prize.

How are we to know what character of teaching is best in this matter? Is adult judgment to be trusted? Can we apply the experimental method? The latter is usually the more satisfactory in other tests, and mere adult decision is certainly not guided by past experience. Because the objective and subjective, the theoretical and practical, will eventually both figure in the sex question of the child, it is important that the basis of this education be correct and truthful, that it may fulfil the requirements of the child mind. Any suppression or twisting of facts on first inquiry is likely to be followed by exaggerated and still more twisted results later. Neither largeness of number nor excellence of quality of such pamphlets will take from the responsibility of parents in the matter, for it is to them that questions are first put—before the child reads pamphlets—both as to theoretical origins and practical developments.

Perhaps the difficulty in making suitable literature has been with adults, of whom practically none has had very good instruction along these lines. Certainly we have seldom been frankly taught, and all practical experience has been against frankness, for fashion and custom have done their utmost to mystify the mind and to add intensity to the sexual instincts. Those who make their living by playing upon this instinct understand this fact and turn it to account. Modesty is an instinctive tendency developed by Nature to make the race more prolific, of which we avail ourselves to heighten the attraction between the sexes.

Frankness and openness in regard to sex from the beginning help to rob the mystery of its power. Incidentally they may rob some of the old fogies—"who never thought an impure thought"—of their breath, but sex teaching must be of this sort or it falls short of its aim. By calling the pamphlet a sex book we are again making a mistake by mag-

nifying an already big enough mystery. It would be better to have some more general and less leading title. It is truly remarkable how much can be intrusted to the young mind, and it might be questioned whether there are many things in literary form under a general frank heading that are really very demoralizing. One great library has been freely open to those who read, and is recommended to children, and yet of all books that need expurgating it would seem to be the Bible, but on account of its evident straightforwardness and matter-of-factness it can hardly be said to have corrupted the minds of its myriad readers.

Not by books, plays, lectures, nor other means, is abuse of the sex function to be abolished at a stroke. The social evil seems to be as great in New York as it was in Babylon. There are reasons why it ought to be greater in the modern city, so perhaps we are actually making progress, although it is not apparent. It is to be hoped that all our educative efforts are to be rewarded by some success, but only social changes which will be slow in coming, if they ever come, can cure conditions that present social relations have brought about. Meanwhile parents, teachers, and physicians should do their best.

SOME POINTS IN THE DIAGNOSIS OF CEREBRAL SYPHILIS.

Cerebral syphilis has not received the degree of recognition which it deserves. Of recent years the diagnosis has been more frequently made, thanks to our better clinical and laboratory aids; it is now generally appreciated that cerebral syphilis plays a not unimportant role in the production of mental disease and that it should be clearly recognized and given its proper place among the organic psychoses.

Anatomically considered we find that there are three main types of cerebral syphilis, namely, meningitis, endarteritis, and gumma. Since the therapeutic indication is the same in all, this differentiation is not of real practical value; nor, indeed, is it possible in all instances. In contrast with general paresis and tabes dorsalis which almost without exception appear ten or more years after infection with *Spirochæta pallida*, cerebral syphilis usually first makes itself known within three years. The Argyll Robertson pupil is rarely present. There is an acute onset with headache, dizziness, and vomiting; cranial nerve palsies occur, there are convulsions, without loss of consciousness, but generally followed by permanent focal symptoms; there is no disturbance in speech and writing in most cases, and no facial tremor. Pseudobulbar paralysis sometimes occurs. The accompanying mental disorders consist of the so called acute organic reactions, including

confusion, delirium, amnesia, hallucinations, retention defect, poor memory for recent events, and relatively little disintegration of the personality. The Wassermann reaction with the blood serum should prove positive, while that with the spinal fluid should prove negative, except with large quantities of spinal fluid.

Anomalous features include euphoria, grandiose ideas, and confabulatory states. As Henderson (*American Journal of Insanity*, October, 1913) says, although there is no pathognomonic sign for cerebral syphilis, yet the features mentioned above serve to delimit a disease entity. From the prognostic and therapeutic standpoint this is of the greatest value, since the prognosis of cerebral syphilis, compared with that of other organic affections of the nervous system, is relatively good, particularly so in cases coming on shortly after the primary infection, and of the meningitic or gummatous variety.

A recognition of the condition gives us, as is seen, valuable therapeutic indications; the earlier the diagnosis is made, the better the prognosis, if judicious therapy is instituted.

THE PROPHYLAXIS OF TYPHUS FEVER.

Although the profession apparently is not yet ready to admit that the body louse is the sole infecting agent in typhus fever, it is to be noted that all prophylactic measures so far advised are concerned only with the insect. Major Orticoni, in *Paris médical* for April 17, 1915, after discussing several ineffective methods of dealing with lice, by steam, sulphurous acid, vaporized gasoline, etc., avers that he has secured almost ideal results from a ten per cent. solution of commercial formol in water. An assistant holds the infected garments and passes them twice rather slowly before the vaporizing jet; both lice and nits succumb in short order, and the method has the immense advantage that the soldier may immediately resume his garments if he is not provided with a change. A little work with a stiff brush removes the dead remains of the parasites and the eggs. Occasionally it may be necessary to rip open the seams of the clothing, but only in aggravated cases of infestation. Orticoni warns that gaseous formic aldehyde, obtained by volatilizing trioxymethylene, will not replace the solution of commercial formol, and is quite useless as a parasiticide.

NEW YORK STATE ANTINARCOTIC LAW AMENDED.

Under the Boylan antinarcotic law any person purchasing opium, coca, or their derivatives, was required to make out an order on a blank form obtained from the Board of Health of the State of

New York. Under the National Harrison antinarcotic bill purchasers were required to use a blank provided by the United States Commissioner of Internal Revenue. In New York State it therefore became necessary to use two blanks to make one purchase. This condition has been changed by the enactment of an amendment to the Boylan law by the legislature of the State of New York, permitting the commissioner of health to recognize the order blanks required by the Federal Government. This amendment, which was a part of the Bloch bill, has been put into effect by the issuance of instructions from the State board of health officially recognizing the blank issued by the Federal Government. Hereafter only one order blank will be required in this State.

KIND WORDS FOR ELECTROTHERAPEUTICS.

At a meeting of the electrotherapeutical section of the Royal Society of Medicine on April 16th, reported in the *Lancet* for April 24, 1915, Dr. F. Hernaman-Johnson drew attention to the treatment of intestinal stasis by electrical stimulation of the abdominal muscles, such as by the sinusoidal current rhythmically interrupted; cascara and mineral oil could be used also for a day or two and a belt worn. Dr. A. E. Barclay corroborated this plan of treatment, and Dr. T. J. Bokenham, Dr. A. C. Jordan, and Dr. Reginald Morton were also enthusiastic. The last named referred in sympathetic terms to the death of Dr. Lewis Jones, once president of the section, whom he called the father of electrotherapeutics in the British Empire. The specialty began its upward trend in 1889, when Dr. Lewis Jones took charge of the electrical department of St. Bartholomew's Hospital, a fact attributable to his scientific methods, his skill and thoroughness, and his robust belief in the future of electrotherapeutics, which rendered him impervious to scornful attack, and which has been fully justified by the triumphant development of the specialty.

IODINE AND VACCINATION.

Realizing the appeal that treatment of the skin with tincture of iodine before vaccination might have to the average practitioner, Dr. L. Bodley Scott communicates to the *Indian Medical Gazette* for March, 1915, the results of a series of experiments on calves made at a conference of civil surgeons at Assam.

The method of preparation by iodine was as follows: 1. The skin of the abdomen was shaved and washed with soap and water. 2. All soap was removed with clean water. 3. The shaved area was then dried with a towel. 4. After five or ten minutes, tincture of iodine was painted over the area with a cotton swab. 5. When the iodine was dry, vaccination was performed as usual, punctures being made with a vaccinating lancet and lymph rubbed in with the back of a spoon. Twelve calves were vaccinated by the iodine method, and, during the same periods, forty-seven by the usual method. Following the customary routine, the vesicular ma-

terial removed on the sixth day was carefully weighed and the yield of each calf recorded. The average yield of the iodine calves was 7.7 grams and of the others 26.6 grams. Of the iodine calves, two developed so few vesicles that no useful amount of vesicular material could be removed. The other ten yielded from two to 25.5 grams. Of the forty-seven control calves, one yielded none and the remainder from 9.5 to 62.8 grams.

It was plain that iodine as used in this experiment seriously interfered with the development of vesicles. This was in fact obvious to the eye without any calculation of the weight of lymph yielded. Instead of the usual thick crop, only a few scattered vesicles formed on the scarified area. The difference lay in the number of vesicles which developed and not in their size or quality. Those which did form were normal in appearance. In none of the iodine calves did vaccination actually fail altogether, but the success rate was reduced to about twenty-five per cent. instead of the usual eighty to ninety. Only two of the iodine calves yielded a good crop of vesicles.

News Items.

Change of Address.—Dr. Harry Lowens, to 303 St. Ann's Avenue, New York.

A Hospital for Drug Habitues.—A fund of \$6,000 has been subscribed by a number of women in New York for the establishment of a hospital for the care and treatment of sufferers from drug habits. A site on Riker's Island has already been selected and the work of construction will begin shortly.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, May 10th, Samaritan Hospital Clinical Society; Tuesday, May 11th, Pediatric Society; Wednesday, May 12th, County Medical Society; Thursday, May 13th, Polyclinic Ophthalmic Society, Pathological Society; Friday, May 14th, Northern Medical Association, Psychiatric Society.

New Hampshire Medical Society.—The 124th annual meeting of this society will be held in Concord on Wednesday, May 19th. Dr. Herbert K. Faulkner, of Keene, president of the society, will deliver the annual presidential address at the morning session. Dr. John H. Gleason, of Manchester, has been chosen anniversary chairman. Dr. Russell Wilkins, president of the Merrimac County Medical Society, will extend a greeting to the visiting physicians.

Women's Medical Society of New York State.—At the ninth annual meeting of this society, held in Buffalo on Monday, April 26th, officers were elected as follows: President, Dr. Maud J. Frye, of Buffalo; first vice-president, Dr. Eveline P. Ballantine, of Rochester; second vice-president, Dr. Annie S. Daniel, of New York; third vice-president, Dr. Mary S. Macy, of New York; secretary, Dr. Mary Gage-Day, of Kingston; treasurer, Dr. Florence McKay, of Rochester. Dr. Angenette Parry, of New York, acted as toastmistress at the banquet which brought the meeting to a close.

Resolutions on the Death of Dr. John P. McGowan.—The medical board of the New York Foundling Hospital, at its regular monthly meeting held at the hospital on April 1st, passed the following resolutions:

WHEREAS, Death has called from us our colleague and fellow member, Dr. John Patrick McGowan, and

WHEREAS, By his demise the sisters of the institution have lost a devoted friend, the medical board a loyal member, and the little children to whose relief and comfort he cheerfully administered for so many years, a resourceful and skillful attending physician; therefore be it

Resolved, That the medical board, through its secretary, offer its condolence and express its sense of loss to the bereaved widow and family, and be it further

Resolved, That these resolutions be spread upon the minutes of this board, and a copy sent to the widow of the deceased and to the medical journals for publication.

JOHN J. REID, M.D., { Committee.
JOSEPH KENEFFICK, M.D., {

Dedication of New Buildings of the Washington University Medical School.—On April 29th three new buildings of the medical school of Washington University, St. Louis, were dedicated. The new buildings cost \$1,200,000 and are the gift of Mr. Robert S. Brookings. The school will be conducted in connection with the new \$1,500,000 Barnes Hospital. Dr. Eugene L. Opie is dean of the medical school, Dr. Fred T. Murphy is assistant dean, and other members of the faculty are Dr. Frederick A. Hall, Dr. Frank J. Lutz, Dr. Robert James Terry, Dr. George Dock, and Dr. Joseph Erlanger.

Qualifications Required for Appointment in the Medical Corps of the Navy.—A revised circular for the information of persons desiring to enter the Medical Corps of the United States Navy, has been issued by Surgeon General W. C. Braisted. The next examination will take place on or about July 6, 1915. Applications, accompanied by the necessary letters or certificates, should reach the Bureau of Medicine and Surgery not later than June 26, 1915. These circulars, together with complete information regarding the coming examination, may be obtained by addressing the Surgeon General, United States Navy, Navy Department, Washington, D. C.

Last Week's Health Report.—The number of deaths reported last week from all causes was 1,638 with a death rate of 14.72 per 1,000 of the population, against 1,593 deaths and a rate of 14.89 during the corresponding week of 1914. There were 154 deaths reported from lobar pneumonia against 119, 142 deaths from bronchopneumonia against 103, and 207 deaths from pulmonary tuberculosis against 188. Chronic organic heart and kidney diseases showed a slight increase in mortality. The death rate for the first eighteen weeks of 1915 was 14.72 per 1,000 of the population against a rate of 15.63 during the corresponding period of 1914.

American Relief for Belgian Physicians.—During the week ending May 1, 1915, the following contributions were received by the treasurer of the American Committee of American Physicians for the Aid of the Belgian Profession: Dr. N. D. Murphy, of Bangor, Mich., \$25; Colonel W. H. Arthur, Medical Director U. S. A., San Francisco, \$10; Dr. Augustus A. Eshner, of Philadelphia, \$10; Dr. S. W. Goddard, of Brockton, Mass., \$10; Dr. Albert M. Judd, of Brooklyn, \$5; Dr. Calvin F. Barber, of Brooklyn, \$10; Mount Vernon Medical Society, Mount Vernon, N. Y., \$10; receipts for the week, \$80; previously reported, \$6,505.50; total, \$6,585.50.

Civil Service Examinations.—An examination for the position of physiologist in the dairy division of the Bureau of Animal Industry, Department of Agriculture, Washington, D. C., is announced by the United States Civil Service Commission, to take place on June 8th. The examination is open to men only and carries a salary of \$2,500 to \$3,000 a year. The duties of the position will be to take charge of investigations in the secretion of milk and will involve a general study of the factors controlling it. An M. D. degree or a Ph. D. in physiological work and at least four years' subsequent experience in the investigation of physiological problems are prerequisites.

Special Training for Attending Physicians at Tuberculosis Clinics.—The work in the tuberculosis clinics of the health department differs considerably from that of general medical clinics, requiring not only efficiency in physical diagnosis, but also an intimate acquaintance with tuberculosis hospitals and sanatoriums, social service, and special knowledge of departmental branch office work. A special clinic of instruction has been established, in which all applicants for appointment to the volunteer service will be assigned for courses in physical diagnosis and for a careful study of branch office and clinic routine. Special emphasis will be laid on the importance of thorough and efficient work and upon the proper treatment or disposition of patients considered to be tuberculous. This clinic will be under the direction of Dr. D. Clifford Martin, assistant to the chief, division of tuberculosis, and for the present will be held only at the Chelsea clinic. Later a similar clinic will be held in the borough of Brooklyn. The classes will be not larger than ten in order that the routine work of the clinic may not be interfered with, and upon the completion of the course, those recommended by Doctor Martin will be appointed volunteers to the tuberculosis this position.

New York Academy of Medicine.—The New York State Department of Health prepared the program which was presented at a stated meeting of the academy held on Thursday evening, May 6th. The following papers were read: The Public Health Council of the State of New York, by Dr. Hermann M. Biggs, State commissioner of health; Certain Special Activities of the Department Control of Midwives, Cold Storage, etc., by Dr. Linsly R. Williams, deputy commissioner of health; Educational Work of the State Department of Health, by Professor C. E. A. Winslow, director, division of publicity and education; Laboratory Service for the State, by Dr. Augustus B. Wadsworth, director, division of laboratories; The Diminution in the Death Rate, by Dr. Cressy L. Wilbur, director, division of vital statistics; The Campaign against Infant Mortality, by Dr. H. L. K. Shaw, director, division of child hygiene; The Treatment of Diphtheria Carriers, by Dr. F. M. Meader, director, division of communicable diseases. A general discussion followed.

Medical Society of the State of New York.—Nearly 3,000 physicians attended the 109th annual meeting of this society, held in Buffalo, April 27th, 28th, and 29th, under the presidency of Dr. Grover W. Wende, of Buffalo. Officers to serve for the ensuing year were elected as follows: Dr. William Stanton Gleason, of Newburgh, president; first vice-president, Dr. Montgomery E. Leary, of Rochester; second vice-president, Dr. H. L. Winter, of New York; third vice-president, Dr. Thomas H. McKee, of Buffalo; secretary, Dr. Wisner R. Townsend, of New York (reelected); treasurer, Dr. Alexander Lambert, of New York (reelected); Dr. J. F. Rooney, of Albany, chairman of legislative committee; Dr. Albert W. Ferris, of Saratoga Springs, chairman of arrangements committee; Dr. Thomas J. Harris, of New York, chairman of the scientific work committee; Dr. Joshua M. Van Cott, of Brooklyn, chairman of public health committee; Dr. Frank Van Fleet, of New York, chairman of medical research committee. Councillors elected were: Dr. J. E. Sadlier, of Poughkeepsie; Dr. J. S. Cooley, of Mineola; Dr. A. H. Traver, of Albany; Dr. J. B. Ransom, of Dannemora; Dr. W. D. Garlock, of Little Falls; Dr. T. F. Manley, of Norwich; Dr. W. T. Shanahan, of Sonyea; Dr. C. G. Leo-Wolf, of Buffalo.

Combating Venereal Quacks.—The recognized and necessary medium through which venereal quacks are enabled to ply their nefarious trade, is publicity; advertisements in the public press, signs in the toilet rooms of saloons, and exhibitions in privately controlled "anatomical museums." Much progress toward solving the problem would be made if certain of our newspaper owners were public spirited enough to refuse these advertisements. This was actually done in Chicago, the *Tribune* of that city carrying on an energetic fight against this form of quackery in leading front page articles. As a result of this exposure of their methods most of the medical quacks have given the western metropolis up as an unsatisfactory field to cultivate. On the principle that publicity could best be counteracted with publicity, the New York health department had inserted in some of the newspapers which still publish medical advertisements a four line announcement reading as follows:

Free advice regarding venereal diseases can be obtained at the Department of Health, 149 Centre street, Room 207, from 9 a. m. to 12 m. daily, Sundays and holidays excepted. Consultations strictly confidential.

This announcement has already yielded most encouraging results. Thanks to the Retail Liquor Dealers' Central Association, through the kindly efforts of Mr. Whitin of the Committee of Fourteen, permission was granted to replace quack signs in most of the saloons, by metal plates, which read in tabular form:

Venereal Diseases. Confidential advice regarding gonorrhea, syphilis, and sex diseases can be obtained, free, at Room 207, Department of Health, 149 Centre street, 9 a. m. to 12 m. daily, Sundays and holidays excepted. Avoid advertising specialists and patent medicines.

Although only a small number of these signs have thus far been posted, many persons have already come to the department in response to their display.

The department under no circumstances treats any of the applicants to the venereal clinics. It acts merely in an educational capacity. Patients are advised regarding the nature of the disease, the importance of treatment, the necessity for observing the directions of their physicians, the danger of consulting quacks, etc.

The "Health Centre" Idea in Philadelphia.—The establishment and maintenance of a hospital "health centre" in Philadelphia is expensive, and, to a certain extent, its scope must be incomplete, since it must depend in large part upon hospitals for the actual treatment of disease. On the other hand, the amount of good which it accomplishes is enormous. To careful observers who have studied sociological relief, no more potent measure for alleviating distress and for true sociological education has been devised. The logical extension of the health centre idea must include the hospital itself, since the latter can be made to combine all the factors which are needed for relief. The extra expense is negligible, since the hospital possesses all the necessary machinery. The only need is for as much addition to the working force of the Social Service department as the resources of the hospital may justify. The Child Federation was the first institution to establish a health centre in Philadelphia. Prophylactic clinics conducted along somewhat similar lines are about to be established by the Phipps Institute, the Babies' Hospital, the Starr Centre, and the Bureau of Health.

The Federal Control of Quarantine.—At a meeting of the Public Health Committee of the New York Academy of Medicine, held on April 20th for the purpose of discussing the question of Federal control of quarantine, the following resolutions were passed by the academy and sent to the legislature:

WHEREAS, Of all the ports of this country New York ranks first as a receiving station for foreign goods and immigration, as well as a distributing centre for the entire country; and

WHEREAS, The Federal Government controls all the service incident to the administration of the Port of New York with the single exception of the quarantine, which is logically a part of the immigration service; and

WHEREAS, The United States as a party to international quarantine agreements cannot guarantee their uniform observance unless all quarantine stations are under Federal control; and

WHEREAS, All the ports of this country, with the exception of Baltimore and New York, for the reasons above cited, have already ceded their quarantine functions wholly or in part to the Federal Government, therefore be it

Resolved, That the economical and efficient administration of the quarantine service and, above all, the safeguarding of the public health demand the transfer of the Quarantine Station of the Port of New York from the State to the National Government; and be it further

Resolved, That the Government of the State of New York be and hereby is respectfully and earnestly urged to take immediate steps to secure such transfer.

Personal.—Dr. Graham Lusk, professor of physiology at Cornell Medical School, Dr. Victor C. Vaughan, professor of hygiene and physiological chemistry at the University of Michigan, and Dr. Frank R. Lillie, professor of embryology at the University of Chicago, have been elected members of the National Academy of Sciences.

Dr. John J. Abel, of Baltimore, Dr. Theobald Smith, of Boston, and Dr. William J. Gies, of New York, have been elected members of the American Philosophical Society.

Dr. Michael J. Purcell has been appointed city physician of Chicago.

A life size bronze statue of the late Dr. W. W. Mayo, father of Dr. William J. and Charles H. Mayo, of Rochester, Minn., will be unveiled in Mayo Park, Rochester, on Saturday, May 29th.

Dr. Otto H. Schultze, for many years a coroner's physician of New York county, has been appointed medical assistant in the office of the district attorney.

Dr. A. Walter Suiter and Dr. George Graves, both of Herkimer, N. Y., were the guests of honor at a banquet given by the Medical Society of the County of Herkimer, on the evening of April 21st, in recognition of the faithful service of Doctor Suiter, as secretary, and Doctor Graves, as treasurer of the society, a service extending over forty-four years. A Masonic blue lodge pin was presented to Doctor Suiter and a Mystic Shriner's pin to Doctor Graves.

Dr. Wendell C. Phillips, of New York, delivered an address before the Binghamton Academy of Medicine on the evening of April 20th on the Conservation of the Hearing Function. Doctor Phillips held a clinic in the City Hospital in the afternoon preceding the lecture.

Dr. C. E. A. Winslow, of New York, has been appointed professor of public health in Yale Medical School, on the Anna M. R. Lauder Foundation. Doctor Winslow is at present head of the division of publicity and education of the Department of Health of the State of New York.

Dr. Clarence P. Franklin has been elected ophthalmologist to the Stetson Hospital, Philadelphia, *vice* Dr. Isaac Leopold, deceased.

Pith of Current Literature.

WIENER KLINISCHE WOCHENSCHRIFT

April 1, 1915.

Aftertreatment of Amputation Stumps, by M. Seemann.—Extension, valuable in avoiding the retraction of the skin in linear amputations, has been employed by the author. Two long strips of wide bandage are fastened to the extremity with mastisol and applied so that they cross each other at right angles over the amputation stump. To secure them more firmly a calico bandage is applied to the extremity. The two strips are made to pass over a board about twelve by eight cm.; the sides are cut out to prevent the strips from slipping off. In the centre a hole three cm. in diameter is bored. Over this hollow the strips are cut out for a distance of four or five cm. in their longitudinal axes and the openings are lined with adhesive plaster. Through this hole a cord having a small piece of wood attached to one end to prevent its slipping through the opening is drawn, and a weight is fastened to it, thus making extension. The amputation stump is covered with loose gauze and a small square excelsior pad, which is fastened to the calico bandage by four safety pins applied one at each end, serves as protection to it. In changing the dressing all that is required is to draw the extension cord through the board and flap back the strips of bandage which cross over it.

Etiology and Therapy of Bacillary Dysentery, by R. Kraus.—Numerous cases of bacillary dysentery were observed which were complicated by liver abscesses; in one case the staphylococci but no amœbæ were found. In the treatment of bacillary dysentery the use of serum has given better results than in any other infection. The mortality is markedly reduced, about fifty per cent., and the influence on the disease is seen in a very short time. As it has been demonstrated that in dysentery a toxin is produced, an antitoxic serum for the Shiga-Kruse bacillus has been employed. It has been found that this does not affect cases of dysentery due to the Flexner bacillus. This antitoxic serum has been used prophylactically and immunity has been produced. The period of immunity, however, is only about four weeks.

Practical Method of Fastening Permanent Urethral Catheter, by Paul Blatt.—The catheter is introduced in the usual way; ten to fifteen cm. of stockinette, two to four cm. wide, are rolled up for two thirds of the entire length in a manner similar to the rolling up of a rubber finger cot. The roll is drawn over the catheter to the region of the external urinary meatus. The catheter is now covered with mastisol (a resinous preparation) for a distance of three to four cm. from the external urinary meatus and the part of the tube not rolled up is fastened to it. The prepuce is now pushed back over the glans and the penis is also covered with mastisol for a distance of three to four cm. upward from the coronary sulcus. The part of the stockinette which has been rolled up is now drawn up over the penis and the catheter is then in place. The advantages of this method are its cleanliness, the rapidity with which the catheter can be introduced and removed,

the painlessness of the manipulations, and the firm holding of the catheter in position.

April 8, 1915.

Cholera, by Carl Sternberg.—It is very rare for cholera bacilli to be present in the stool longer than two weeks after the case is cured from a clinical standpoint. In most of the cases the stool shows a negative finding from the eleventh to the fourteenth day. It was observed that cases having hospital treatment, even if cared for in emergency hospitals, did not cause a spread of the disease, while in localities where patients were treated in their homes several small epidemics occurred. Cholera is frequently complicated by typhus and dysentery, at times by both diseases. In order to prevent the spread of cholera it is important to make an early diagnosis and as soon as it is made to isolate the patient. In carrying out these precautions in time of war in order to be absolutely certain that no cholera carriers are admitted into a community, the stool of every soldier would have to be examined. This is not practical and it is probably sufficient to examine the stools of those only who have intestinal symptoms. The percentage of cholera carriers is very small, as in a series of 237 healthy soldiers having no intestinal symptoms, repeated examinations of the stool were negative.

Protection against Typhus, by Johann Frisch.—The importance of thorough ventilation of the room by keeping the doors as well as the windows wide open, irrespective of the season of the year, is emphasized. Immediate and thorough disinfection of the clothes should also be carried out and the patient thoroughly examined to determine whether pediculi are present. A third point is the isolation of the patient. The carrying out of these measures has prevented the spread of typhus on several occasions during the present war.

Pathology and Therapy of Tetanus, by Berthold Beer.—In considering the pathology of tetanus the fact that the muscles of the lower jaw are first affected would indicate that the trigeminus possesses a special affinity for the toxin. The muscular contractions which take place in tetanus are similar in a great degree to those which take place in the act of yawning. This act consists in a slow inspiration accompanied by dropping of the lower jaw and followed by a short tonic spasm of the muscles of inspiration. If the mouth is closed while yawning the resemblance to the contractions of tetanus is still greater. The symptomatology of tetanus in addition to the spasm of the muscles shows the presence of chills and an increased reflex irritability. This relation between tetanus and yawning offers some suggestions in the treatment of this condition. The position of the patient might be of value. The hollows of the neck, shoulder, lumbar region and pelvis should be filled in by means of pillows and the patient should be protected from tactile irritation by means of a wire cradle placed over the bed. Under this cradle an even temperature should be maintained by means of an electric lamp to prevent the irritation caused by draughts of air. As the greatest danger in an attack of tetanus is cardiac weakness, measures to prevent this have been tried. The inspiration of cold air has been used with the idea of overcoming the spasms and it

has proved successful in such conditions as uremia, meningitis, etc. Formerly the patient inhaled air cooled by ice, but of late the air has been made cool by ether and a mechanical apparatus used. In addition to the treatment outlined antitetanic serum should be used.

BULLETIN DE L'ACADÉMIE DE MEDECINE.

February 23, 1915.

Specific Serum Treatment of Wounds, by Leclainche and Vallée.—The advisability of increasing artificially the local processes of tissue defence in the treatment of wounds is emphasized, antiseptics acting on the bacteria themselves without compromising the integrity of the tissue cells not having as yet been found. The preparation which the authors have devised and employed, with excellent results, is a polyvalent serum containing a mixture of antibodies against various strains of staphylococci, streptococci, colon bacilli, pyocyanic organisms, *Bacillus proteus*, the vibrio of sepsis, and the perfringens organism—the last two anaerobic. The serum is applied to all wounds, whether suppurating or not. It acts similarly on the mucous and serous membranes. Not only was its application painless, but preexisting local pain was obtunded or removed almost at once. In many instances a purulent discharge ceased in twenty-four to forty-eight hours; in more severe cases the pus, previously fetid and sanious, was replaced by a serous discharge, which itself soon after disappeared. Covering membranes and necrotic tissues simultaneously became eliminated, and secondary conditions such as edema, lymphangitis, and lymphadenitis yielded. In febrile cases the temperature quickly dropped; in others, a slight, temporary febrile reaction could be noted. The general condition improved, and tissue repair was distinctly hastened. The specific nature of the antibodies contained in the serum was demonstrated in a large number of experimental observations. Where there are recesses in a wound the serum must be directly applied in each recess by means of injection, gauze wicks, etc. The serum was used with success in various traumatic cases, as well as in abscesses, carbuncles, suppurative arthritis, and synovitis, etc. Preventive use of the serum is indicated after all surgical operations.

Direct Blood Examination in the Differential Diagnosis of Typhoid Fever from Other Infectious Diseases, by D'Oelsnitz, Bourcart, and Ronchise.—Immediate examination of a drop of blood on a hollow slide, according to a method originally used by Hayem, is recommended in the diagnosis of cases of typhoid previously vaccinated against this disease and where facilities and time for blood culture work are not available, as is sometimes the case in military practice. Among eighty-two cases of typhoid fever, twelve occurred in vaccinated patients, and in each of these, examination of the blood by the simple method advised suggested typhoid as a diagnosis even before a clinical diagnosis could be made. The method consists essentially in observation of the thickness of the fibrin reticulum formed in the drop of blood, together with the number of leucocytes present, an almost complete absence of reticulum and a leucopenia suggesting typhoid fever, while the opposite conditions suggest pneumonia or a meningococcal infection.

PRESSE MÉDICALE.

March 4, 1915.

A New Treatment of Typhoid Fever, by Gay.—The treatment described aims to reduce, in view of the exigencies and limitations of military practice, the number of baths to be given to each typhoid patient, and combines cold affusions and enemas with intravenous injections of a colloid preparation of blue gold, known as collobiase. The affusions are administered on a table, inclined slightly to one side, covered with four blankets, blanket rolls ten to fifteen cm. in thickness placed along the elevated side and two ends of the table, and a large piece of oil cloth, hanging down from the lower side of the table into a large receptacle for waste water. The patient whose temperature has reached 39° C. is first given an enema of two litres of boiled water containing two parts in 1,000 of salicylic acid, from a height of fifty cm. He is then wrapped in a sheet on the bath table, and three bucketfuls—or about thirty litres—of cold water are slowly poured over him, steam rising from the portion of the sheet over his chest. After each bath the patient is quickly wrapped in a blanket, rubbed with camphorated alcohol, and given a warm alcoholic drink. Supplementing these measures, which do not suffice in severe cases to produce prolonged temperature remissions, intravenous injections of one to two c. c. of gold collobiase are given, as a rule when the temperature attains 38.5° C., or, if the general condition is fairly favorable, at 39° C. Three to six injections are usually given. After each injection there is a period of lowered temperature and improved general condition lasting sometimes sixty hours or even longer. Diuresis is promoted. The injections are quite harmless, over one thousand having already been given without untoward result. In a series of 200 typhoid cases the mortality was reduced to five per cent., where before it had been thirty per cent.

RIFORMA MEDICA.

April 10, 1915.

Toxicity of Ductless Gland Extracts, by L. Sivori.—Ductless glands undoubtedly possess hormones which stimulate the activity of other glands which have internal secretion; they also possess products which neutralize the hormones of other ductless glands; finally, some of these organs produce hormones which are in part identical with, or related to those of other glands. To determine the toxicity of certain extracts of ductless glands, Sivori made a series of experiments. Extracts of thyroid and of suprarenal were made by the Cesa-Bianchi method and intravenous injections administered to rabbits of a given weight. It was found that the minimum lethal dose of the aqueous extract of suprarenal glands was 0.3 c. c. for a rabbit of 1,800 grams weight, whereas it took one c. c. of thyroid extract to produce death in a rabbit of 1,750 grams.

Mixed Typhoid-Paratyphoid Vaccines, by F. Porcelli-Titone.—The frequency of paratyphoid infection makes it advisable to incorporate this bacillus in antityphoid vaccines. Castellani in 1901 first advocated this method and, finding that the double vaccine did not entirely protect against fevers of the

typhoid group, he was finally successful with a quadruple vaccine of the bacilli of typhoid, paratyphoid A and B, and cholera. Equally good results were obtained when the bacillus of Malta fever was used as the fourth constituent instead of the cholera bacillus. The immunizing process consists of three subcutaneous injections in the arm at intervals of one week, these injections being 0.5 c. c. for the first injection and from one to 1.2 c. c. for the second and third injections. The local and systemic reaction is about the same as that of the plain typhoid vaccine.

Hepatopexy, by M. Francini.—Ptosis of the liver produces pain of varying character and intensity. Sometimes there is merely discomfort with a dragging feeling and a sense of weight in the right lower thorax and scapular region. On the other hand there may be intense pain even of a colicky nature. In cases complicated by cholelithiasis Francini advises hepatopexy combined with cholecystostomy.

Rare Esophageal Localization of Syphilis, by R. Stanziale.—Stenosis of the lower two thirds of the esophagus has never been reported except when of a syphilitic nature. The diagnosis of esophageal syphilis was made by Stanziale in two cases after very careful examination including esophagoscopy and x ray examinations. The site of the process was in the extreme lower end just above the diaphragm. He maintains that esophageal stenosis especially in the lower third without discoverable cause, should be considered suspicious.

BRITISH MEDICAL JOURNAL

April 17, 1915.

Wound Infection, by Sir A. E. Wright.—In this second portion of his work, Wright describes a simple method by which the migration of leucocytes through a mass of fibrin can be studied *in vitro* under conditions closely approaching those encountered in wounds. He finds that the leucocytes will migrate more freely downward than laterally, and more freely laterally than upward; they will migrate in any direction to a certain extent in response to a chemotactic agent. Anaerobic conditions favor migration more than aerobic, and the migration is more abundant at a temperature of 40° C. than at 37° C. Temperatures of 10° to 15° C. stop migration, but even after exposure to 0° C. for half an hour the leucocytes will resume migration when warmed. Normal salt solution materially enhances migration, strong solutions stop it, ether does not seem to affect it, but chloroform vapor prevents it. Concentrated bacterial suspensions inhibit, diluted they increase migration, and very dilute they have no action other than that of the diluent. The inoculation of human beings with streptococcus vaccine materially increases the chemotactic power of their blood toward suspensions of the same organisms. Phagocytosis accompanies migration to a very marked degree when living bacterial suspensions are used, but this response occurs only during the earlier period of incubation and marks a period of conflict between the leucocytes and the organisms. Later the organisms overcome the powers of the limited numbers of leucocytes present in the preparation. When the organisms,

however, are present in small amounts only the leucocytes may completely overcome them. Wright concludes with the following statement regarding the future possibilities of this method as a means of research: That it should yield us the information which will, "enable us to activate or restrain, according as one or the other may approve itself the better policy, the migration of leucocytes into the wound. And we may hope also to determine in connection with every antiseptic or other solution which is brought into application in a wound, whether it promotes or hinders migration.

Blood Pressure Estimation in Children, by G. Spencer Melvin and J. R. Murray.—The auscultatory method alone gives accurate results in either children or adults, and is easily carried out in the former. A narrow cuff is to be used and means should be taken to strap the bell of the stethoscope to the arm so as to leave both hands of the operator free. The readings should always be taken with the finger on the radial and should be lower than would be the case if the tactile sense was used as the guide. The diastolic pressure should be that taken at the time of the appearance of the fourth phase. Forty children between four and fourteen years old, with an average age of nine and a half years were the subjects for the measurements. The average systolic pressure was found to be 108.1 mm. Hg., the diastolic 72.4 mm. Hg., and the pulse pressure 35.7 mm. Hg. The striking feature is the fact that the systolic pressure in children is only slightly lower than that in healthy adults. On the other hand the diastolic pressure averages higher in children than in adults and the pulse pressure is necessarily lower. The relation of pulse pressure to systolic pressure in children was 1 : 3 while it was 1 : 2.7 in adults. The relation of pulse pressure to diastolic pressure was 1 : 2 in children and 1 : 1.6 in adults.

The Effects of Military Training upon Lead Workers, by Frank Shufflebotham.—Fourteen soldiers were observed who had been previously engaged in work with lead and who manifested symptoms of lead poisoning within three to seven weeks after mobilization. Only three of these men had symptoms on previous occasions and all seemed well at the time of enlistment. Shufflebotham suggests as an explanation that the active and arduous life, particularly the unaccustomed muscular exertions, lead to an increased metabolism with the liberation of lead which has been already locked up in the organs and tissues.

LANCET.

April 17, 1915.

Diagnosis between Acute Abdominal and Certain Acute Intrathoracic Diseases, by Colin Mackenzie.—Pneumonia, pleurisy and pericarditis may very closely simulate one or another of the following acute intraabdominal conditions: Perforated gastric ulcer; appendicitis; cholecystitis; gastroenteritis; hemorrhagic pancreatitis; and intestinal obstruction. One of the most valuable differential signs between pneumonia and any of these abdominal conditions is the pulse and respiratory quotient. This is the figure obtained by dividing the number of pulse beats a minute by that of the respirations

and is almost always below three in pneumonia, while in acute abdominal conditions it is very commonly above three, often reaching as high as four and over. The temperature is almost always higher in pneumonia than in abdominal conditions, and this combined with a low pulse and respiratory quotient is strong evidence of the former condition. Even when pneumonia arises as a complication of an acute abdominal condition, the pulse and respiratory quotient almost always falls. A chill is also such a common initial symptom of pneumonia and relatively so much less common in acute abdominal conditions that it is of value in differentiating the two. Much the same is true of herpes, but this is not an early symptom of pneumonia and hence loses much of its differential value. The difficulty of differentiating between acute pleurisy and abdominal conditions is greater than with pneumonia until the friction rub or signs of fluid appear. The differential signs of pulse respiratory quotient, temperature, and pulse rate are much the same as with pneumonia, but are of decidedly less value. Acute pericarditis is often very difficult to differentiate, and several cases of this disease have been subjected to laparotomy by mistake. Reversed abdominal respiration may give some help in pericarditis, but the other features mentioned for pneumonia and pleurisy are of relatively slight assistance. One extremely valuable point in differentiating any one of these three conditions from an acute abdominal is the absence in them of tenderness upon rectal or vaginal examination.

BOSTON MEDICAL AND SURGICAL JOURNAL.

April 22, 1915.

Leprosy: Pulse and Temperature, by James A. Honeij.—Observations made on seventeen patients for two years, on fourteen of them continuously for eighteen months, furnish the following conclusions. There occurs a definite clinical temperature and pulse curve diagnostic and prognostic of leprosy. There is a frequent and persistent high morning pulse rate in all cases. A constant high pulse rate is most marked in progressive and advanced cases. A persistent high pulse rate without a corresponding elevation of temperature of prolonged duration is found after what are called toxic and febrile attacks, which are typical reactions characterized by a rise of temperature and an increase in pulse rate with symptoms of an infection. There is a correlation of temperature and pulse in early cases, in contrast to a gradual increase of pulse rate without similar temperature reactions in progressive and advanced cases. A low evening temperature is present not uncommonly. A marked irregularity in temperature and pulse exists during complications not associated with leprosy. Marked temperature and pulse reactions occur from otherwise insignificant causes, both physical and mental.

Skeletal Cancer, by E. H. Risley.—The conclusions of the writer may be summarized thus: Metastasis probably takes place in most cases by centrifugal spread along the lymphatic plexus of the deep fascia, and occurs in bone almost entirely in the areas of the body subject to skin nodule metastases, i. e., proximally to the knee and elbow joints. Bones distant from these joints are rarely

involved. Metastases are most common after cancer of the breast, cancer of the prostate and thyroid coming next. The liability of a bone to cancerous invasion increases with its proximity to the primary lesion. The sternum and ribs are affected most often and about equally; next come the spine, femur, humerus, pelvic and cranial bones. The character of the secondary lesion always corresponds to that of the primary. The percentage of vertebral metastases in scirrhus of the breast is nearly twenty-five. The frequency of metastasis after cancer of the prostate may be as high as twenty-five per cent. Pain is the only characteristic symptom, a visible or palpable tumor is rare, while spontaneous fracture is quite common, occurring in about twenty-four per cent. Any fracture of a long bone that occurs as the result of a trivial injury should suggest immediately the possibility of a metastasis, and lead to a careful search for a primary tumor. A neoplasm should be suspected in all cases of painful paraplegia. No diagnosis of a primary bone tumor should be made without a very careful examination of the abdomen, mammary glands, prostate, and thyroid, as this seldom fails to reveal the primary focus.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

April 24, 1915.

Contour of the Normal Arterial Pulse, by C. J. Wiggers.—The pulse, as palpated or recorded from any artery, is the variation in the arterial volume produced by the endoarterial pressure changes at that point. The details of the arterial pulse correspond exactly to the details of the pressure curve. To record these variations requires an apparatus of higher efficiency than is supplied by any in current clinical use, and consequently the details of these changes were not recognized until the introduction of the segment capsule of Frank. The contour of the central pulse differs materially from that of the peripheral pulse. The former allows an exact study of the pressure changes in the large central arteries; the latter records these changes as modified by friction and waves reflected from the periphery. The central pulse offers exceptional opportunities for studying the condition of the circulation. A study of its contour during systole permits conclusions as to the relations between cardiac output and peripheral flow presented by no other method. The precise onset of systole and diastole can be accurately determined.

Prognosis and Treatment of Tuberculosis of the Knee in Children, by J. W. Sever and E. W. Fiske.—Deformity, limitation of motion, shortening, and impaired function are such common end results in this condition that it is often advisable to establish with the parent an early understanding of these possibilities, as well as the certain expectation of a long and tedious convalescence. In the light of our present knowledge, it would seem that the quickest, safest, and most successful method of treatment would be excision of the entire joint—unquestionably the treatment *par excellence* in adults, in whom speedy return to function is the chief consideration; unfortunately, in children, this is inapplicable except as a last resort, since, on account of the growth of the child, any destruction of or interference with

even a small part of either epiphyseal line will produce marked shortening of the leg. Hence all our treatment, both general—in an attempt to raise bodily resistance, and local—by absolute quiescence to nullify all possibilities of strain or trauma to the affected part, must be conservative. For combating the local condition absolute rest and noninterference are our best weapons, and extended experience has shown that nonoperative treatment, employed so far as possible throughout the course of the disease, is the method of choice. At the Children's Hospital, Boston, the usual treatment consists of protection from motion and weight bearing by fixation in a plaster cast, in combination with a Thomas' knee splint, with or without traction; a high sole on the unaffected leg and crutches being supplied. The child is allowed to go about with the apparatus on until marked improvement is shown, by lack of local heat and spasm; when the cast is gradually abandoned, while the splint is altered to a convalescent form, and later omitted altogether. In acute cases in which there are much spasm, pain, and flexion deformity, rest in bed, with traction to counteract spasm and reduce deformity, until the most acute symptoms have subsided, is considered essential. Whenever possible, deformities such as flexion or subluxation are corrected each time the plaster is changed; if the correction cannot be performed in this way it is done under ether, either manually or with the genuclast. Of 120 cases in which operation was performed, in fifty per cent. there were unsatisfactory results, while in 131 cases in which there was no operation, the results were unsatisfactory in only twenty-five per cent. No definite answer can be given in an individual case as to the time required for a cure. Individual differences are very marked, and the length of treatment may be greatly influenced by general conditions, acuteness at onset, complications such as abscesses, operations, precision in carrying out treatment, etc. It is also difficult to say just when a tuberculous joint is cured, for some become acute after long periods of quiescence. In general, it may be said that with present day conservative treatment, a satisfactory prognosis may be made in at least two thirds of cases; children presenting the most acute joints or with abscesses on admission, having the poorest prognosis.

Dangers and Inconsistencies in Short Time Treatments for Drug Addictions, by C. C. Wholey.—That we cannot often look for cure from such so called specific treatments is evidenced by the mental and physical changes which take place in an individual addicted to narcotics. These maladjustments have become established, often with great effort, over a long period, and the changes are manifest everywhere in the organism. In the digestive system the distorted condition is partially revealed by the nausea, vomiting, and griping which set in on sudden withdrawal of the drug. In the circulatory system the rapid pulse, arrhythmia, and general cardiovascular embarrassment point to the established dependence on the drug. Internal glandular secretions often undergo grave alterations; thus, a familiar finding in the morphinist is the absence of sexual capacity or desire, while in the female there is apt to be disappearance of the menstrual func-

tion, frequently accompanied by atrophy of the breasts. Marked eroticism often appears with returning sexual function. Again, many of these patients, after withdrawal, show an unusual disposition to adiposity, and sometimes there are very active hyperthyroid symptoms, with marked increase in the size of the gland. Time is needed for righting such profound biochemical and physiological disturbances. Probably the gravest alterations occur in the mental sphere. Ordinarily these perverted mental habits present the greatest difficulty in establishing ultimate cure; yet it is to these changes that least attention is usually paid.

MEDICAL RECORD.

April 24, 1915.

Suggestions in Handling Cases of Diabetes mellitus, by H. Blum.—For ordinary clinical purposes only two tests need be used in the qualitative examinations for glucose, Fehling's and Nylander's. In cases where there is any doubt as to the nature of the reducing substance a third, the fermentation test, must be applied. After the presence of glucose has been shown by these tests, a quantitative examination is imperative, and for this nothing is better or simpler than Rudisch's method. In this a solution is used consisting of pure crystallized copper sulphate, 4.17 grams, sodium sulphite, fifty grams, and sodium carbonate, eighty grams, dissolved in 500 c. c. of ten per cent. ammonia water. Into twenty-five c. c. of the fluid, still hot from boiling, the urine is poured from a burette, one c. c. at a time, and the mixture stirred constantly until it becomes colorless. By dividing the constant 2.5 by the number of c. c. of urine used, the percentage of glucose present in specimen may be ascertained. The urine of every diabetic should be examined for acetone and diacetic acid, and all the tests done in routine work, such as for the specific gravity, albumin, indican, etc., should also be made; but unless the physician is able to carry out all the tests accurately, it is much better to have fewer examinations made at a laboratory. All specimens should preferably be twenty-four hour ones. Nearly every mild case of diabetes can be controlled by diet alone, the patient becoming stronger and feeling generally better. The pains often present in the calves of the legs disappear after the urine has been kept sugar free, the polyuria gradually ceasing and the weight no longer decreasing. In mild cases where diet alone is not sufficient to prevent the glycosuria, arsenic, in the form of Fowler's solution, given to the point of toleration, is a valuable adjunct. In cases where there is a deficiency in the amount of urine excreted, potassium citrate is of service; and with this may be combined sodium bicarbonate, which may be used in other cases also as a preventive of acidosis. Constipation is often an important symptom needing attention, and for this the use of Rochelle salt or a mild aperient water will usually suffice. Muscular exercise must be insisted upon, and almost any form of exercise may be taken unless there is a contraindication present in one of the vital organs. The somewhat neurotic temperament frequently observed in diabetics makes it incumbent on the physician to divert from the patient's mind anything which may exert a harmful

influence. If the case is progressing satisfactorily, too frequent urinary examinations should not be encouraged, and the tests should be made by the physician himself, if possible.

Syphilis and Salvarsan, by S. Steiner.—Whether salvarsan has a direct or indirect effect on the spirochete, the fact remains that it kills the parasite. If the spirochete disappears from the chancre after the administration of salvarsan, it is reasonable to admit that it must disappear also from the organism. It is left to us to discover only means of giving the drug in the way best suited to effect a permanent cure. The first thing to do, therefore, is to cause the extermination of the supply base, the chancre. Excision of the primary sore, when suitably situated, should be performed as soon as the patient is seen (and the diagnosis made, by the proper identification of the spirochete), even though an ugly scar should result. In this way, although the disease may not be eradicated, we rid the patient immediately of a spot which sends many thousands of organisms continuously into the circulation. The second step should be the administration of salvarsan. This drug has the inconvenience of very rapid elimination, and hence its action extends over too short a period; but this drawback can be readily overcome by its frequent introduction into the circulation. Since it takes about from five to eight days for its elimination, it would be safe, as well as logical, to administer the next dose after such time has elapsed. Finally, we may deduce also that maximum doses should be used, since small doses, though repeated, cannot kill a large number of organisms and also serve to make the organism arsenic fast; thus helping to defeat the purpose of the salvarsan.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

*Special Meeting, April 20, 1915.**

The President, Dr. WALTER B. JAMES, in the Chair.

Proposed Transfer of the New York Quarantine Station to National Control.—Dr. WALTER B. JAMES, in his introductory remarks, recalled that a distinguished contemporary philosopher of France had said that there was nothing so stable in a people as the fundamental groundwork of its thoughts, and this might help to explain the apathy of the general public toward preventive medicine. During the thousands of years when men had lived together a community life and until comparatively recent times, preventive medicine did not exist. Disease, especially epidemic disease, was viewed as a scourge or punishment sent by some higher power. Resignation and patient submission were the only conditions that made life tolerable, so that these qualities came to be regarded as the highest virtues. With the discovery of the cause of disease all of the real mystery of it vanished and even today they had remedies, effective preventive remedies for the multitude of maladies and especially of

the communicable and epidemic diseases, so that now patient submission and resignation had come to be crimes.

For more than a quarter of a century the New York Academy of Medicine had openly and publicly advocated the transfer of the Quarantine Station of the Port of New York to the National Government. The reasons for this step were given in the resolution of which many of them had seen copies. The academy desired to make it clearly understood that it had only words of praise for the manner in which the present Health Officer of the Port had conducted his department. They made no criticism of the conscientiousness and efficiency of the present administration, nor indeed of that of the health officer who immediately preceded him, and the State had been lucky in the possession of these two public servants. In the past, however, they had seen administrations of this office which were not above criticism and where the political conditions that they were now desirous of seeing eliminated acted seriously to interfere with the operations of this important office. As long as the responsibility rested where it now rested they felt that there must be great uncertainty as to how the office would be administered in the future.

Many other public bodies had joined the Academy of Medicine in this effort. One of the associations, however, which for over twenty years had stood shoulder to shoulder with them in their efforts to have the country's quarantine put on the best possible scientific basis, had seen fit to reverse its views of two decades ago, and that without the development of a single new fact, without the production of one single new argument. Its home was a temple tinged about with glistening marble columns, and when one entered its halls his eyes were dazzled with the glare of all the polished stones of Holy Writ. This homely little building was insignificant compared to it, but here they did not change their views without some logical reason, some new facts, and they did not subordinate the health, the lives of the men, women, and children of the United States to the supposed, and as they believed, the wrongly supposed interests of the commerce of the city.

Last night an event took place which seemed to him to have a more far reaching significance than had been generally appreciated, although it was announced in today's papers. The Republican Club passed a resolution endorsing the position taken by the New York Academy of Medicine and recommended the quarantine transfer. There were two reasons for urging this change today: First, the fact that in their National Public Health Service they had what they knew to be the most capable and effective piece of machinery in the world for defending the people from communicable disease conveyed from other nations; and, second, because the melancholy state of affairs in Europe had led physicians to believe that with the advent of warm weather and especially with the coming to their shores of European immigrants, the danger of infectious disease would be greater than they had ever known.

At this meeting they had invited to speak only men who had a first hand knowledge of their subject. One, Mr. Henry James, Jr., who would describe the existing conditions in Servia, had re-

*This meeting was held for the purpose of urging that the Quarantine Station of the Port of New York, now in the hands of the New York State Government, be transferred to the United States Public Health Service. The present conditions in Europe make this step especially important at this time.

turned only a few days ago from an official tour of inspection of the Balkan States. Another, Dr. William C. Woodward, of Washington, health officer of the District of Columbia, who would speak on quarantine, had occupied his present responsible position for over twenty years and was recognized as a practical authority on public health and preventive medicine. Finally, to present the constitutional aspects of the subject, they had invited ex-President Taft, than whom no man living had a broader view of the subject, and who was particularly fitted to speak for the ability of the National Government to manage all the quarantine stations of the country, for it was under his administration that the Public Health Service reached its present high degree of efficiency and became what they believed to be the most perfect organization in the world for the administration and enforcement of public health measures. Many letters had been received from health officers, physicians, surgeons, representatives of organizations, and private individuals urging the transfer which they were considering.

The Present Health Conditions in Europe and Their Relation to this Country in the Coming Months.—Mr. HENRY JAMES, Jr., said that it was well known that under present conditions in Europe, where people were thrown out of their accustomed ways of living, epidemics became easily possible. Conditions were worse in Serbia than elsewhere; the Servians were a simple people, with little economic or social organization, living mostly on farms and not equipped to meet disaster. They had few large buildings and few hospitals in which refugees and homeless people could be cared for. When the Austrian army invaded the most populous district the confusion was almost indescribable. Cities like Nish, for instance, which normally had a population of 25,000, now had two or three times that number crowded on them. As a result, they slept in stables, stations, and restaurants after people had eaten. Under such conditions the moment infection started it was bound to spread. In one of the hospitals, said to be the best in Nish, Mr. James was taken into a ward which normally had two rows of beds, but the rooms were so full of beds that one could scarcely get between them. Then there were two additional rows of men lying on straw and mattresses in the clothing in which they had come from the trenches. As was well known, typhus was spread by vermin, and keeping the patients clean was most important, yet such was the destitution that it was impossible to practise even the first principles of cleanliness. The fact that out of 400 doctors, 100 died during the month of February might convey some idea of the difficulty of dealing with these conditions. The epidemic did not confine itself to the army, but was worst among people who had been forced out of their homes. In one building he visited, the sick were huddled together in numbers far in excess of capacity, men, women, and children together; they were without medical attention or nursing, and unable to attend to their own simple needs. The death rate was very high. As soon as a man could drag himself, he left such surroundings and carried the infection to his fellows. If the Austrian army should invade

Servia tomorrow, the men would come in contact with the infected houses and people and carry the infection back to their own country. There was every probability that with the coming of warm weather infectious diseases, especially typhus and typhoid fever, would break out in the more northerly districts of the war zone. If this should happen the United States would also be threatened, and there was no question that the only reasonable course was to prepare an efficient quarantine.

The Menace of Inadequate Quarantine.—Dr. WILLIAM C. WOODWARD, of Washington, D. C., recalled that on April 27, 1859, there had convened in New York the third annual National Quarantine and Sanitary Convention, which, after a careful survey of the subject of maritime quarantine, was convinced that the only hope of bettering the conditions lay in the enactment of uniform State quarantine laws, and it took action to bring about the enactment of such laws. Since that time quarantine had gradually become subject to uniform regulations. The four reasons why quarantine at the port of New York should be made a part of the National quarantine system were: First, because of its relation to foreign affairs of the United States; second, because of its relation to the domestic affairs of the United States; third, because of its relation to the domestic affairs of the State of New York, and, fourth, because of the administrative affairs of the quarantine itself.

The admission and exclusion of citizens of foreign countries, whether immigrants or not, and of merchandise, were governed by the principles of international law, by the terms of treaties, and by Federal statutes, and the enforcement of these laws lay essentially with the Federal Government and not with the State. A State might exclude from its jurisdiction any person or thing that would jeopardize the health of its citizens, notwithstanding international laws, treaty, or statute, but just such efforts on the part of an individual State to substitute its judgment for that of another State or of the United States were the things that might strain their relations with foreign nations and the harmonious relations between State and Federal officers. For the entire country there was but one law for customs, one law for incoming immigrants, one law to secure the safety of navigation along their coasts, while for the exclusion of disease, which was no respecter of State lines, it was possible to have as many laws as there were States in the Union. New York recognized this in its administration of the quarantine station, as shown by the fact that it relied upon the Federal Public Health Service for information regarding conditions in foreign ports. The maintenance of such a foreign service by the State would be prohibitive in cost and many legal obstacles would stand in the way. From the standpoint of domestic affairs, the quarantine port at New York should be under the Federal service since a large number of persons and a large amount of goods passing through this port were destined for other commonwealths. Other States were not obliged to rely upon New York for efficiency in protecting their health, but could establish quarantine stations of their own for the inspection of persons and goods, even though they had been approved and

passed by the officers of the State of New York. Persistence in maintaining its own quarantine station merely for the protection of the State of New York, rendered it inexpedient for the Federal service to establish its station at this port, to which service the States of the interior were entitled. Again, there was no reason why the State of New York should assume the responsibility of safeguarding the health of the United States, and it appeared unfair that this State should have to make up a deficiency in the cost of its quarantine service out of the general revenue of the State. Without casting any reflection on the efficiency of the administration of the quarantine at the port of New York, it might be said that the Federal Government was far better able to maintain an efficient service than was the State. An efficient quarantine service demanded an elasticity of organization that would provide for any emergency. A sudden emergency might call for an increase in the service of twenty, fifty, or 100 per cent. This the State could not reasonably be expected to supply, but the Federal service could readily adapt itself to such a demand. It could assemble men and equipment from all parts of the country which were immediately efficient. The service could then be increased by makeshift equipment and new men at places where little need existed at that time.

The ranking officer of the port should have ample authority, but the most capable of officers might at times need advice in a doubtful case with respect to the passing of a vessel and its passengers and crew. The easiest way out of such a difficulty was to hold such a vessel, but this course was likely to interfere with the movements of persons and merchandise, and this the modern quarantine system strove to avoid. Interested masters and owners of vessels and cargoes should have some appeal from the decision of the quarantine officer. To make such an appeal of value it should be directed to someone as far as possible removed from the influence of local prejudice and excitement, one whose position was not jeopardized by local politics, and one whose training and experience fitted him to act intelligently. Where outside of the Public Health Service could such men be found? If the Federal Public Health Service could administer the quarantine in California, Oregon, and Washington, the distance from Washington, D. C., could not be argued as a reason why the Federal Government could not administer the quarantine at New York. The fact that many of the States had relinquished their administration of maritime quarantine might not be a reason why New York should do so, but these States were perfectly satisfied with the protection given them by the Federal service. Mere bigness was not an argument against making this transfer. Of the traffic passing through the port of New York, a larger proportion was destined to go beyond the limits of the city and State than was the case in other ports, and if this was true then the country at large had a greater interest in the efficient maintenance of the port at New York than it had in other ports.

The fact should not be lost sight of, that by making this transfer the State of New York would not lose all voice in the administration of this port, for

the sanitary officers of any State had the privilege of calling a conference of health officers of the States and of the Federal service at any time when the latter organization was not holding an annual session, for the purpose of bringing pressure to bear upon the Public Health Service to administer the local establishment in a manner acceptable to the sanitary officers of that State.

Relation of the National Government to Quarantine and Other Public Health Agencies.—The Hon. WILLIAM HOWARD TAFT'S service in the Philippines had given him the opportunity to become intimately acquainted with the problems of preventive medicine and with the work of the United States Public Health Service. While the evils of war were great, they must recognize that some good had come from it. The Spanish American war was productive of great good in that it brought the American medical profession into active touch with tropical diseases through the army, navy, and marine hospital corps. From the time that the United States occupied Cuba, American medicine made more progress in discovering the causes and treatment of tropical diseases than in the previous hundred years. Cuba, because of its unsanitary condition and its part in the spread of yellow fever, had become an international nuisance. The work of Walter Reid, Jesse Lazear, and William C. Gorgas in stamping out yellow fever and malaria in Cuba and Panama was well known. The success with which Victor C. Heiser and Richard Strong grappled with beriberi, cholera, bubonic plague, amebic dysentery, and leprosy in the Philippines was equally well worth telling. If the United States Public Health Service had men who were equal to these tasks, it certainly had those who could administer the quarantine station at the port of New York. The United States possessed in the Public Health Service a body of medical men equal to any corps in the world.

In the Philippines the officers of the service did ten million vaccinations, and when the report was made public the antivaccinationists said, "There, that shows what liars they are, for there are only eight million people in the entire population." They failed to take into account the fact that some of the people were vaccinated more than once. At one time there were as many as 40,000 cases of smallpox in the islands, six thousand cases in each of some half dozen provinces; now there was none. In the face of facts like these it was difficult to understand how any one could question the efficacy of vaccination, yet the antivaccinationists remained unconvinced. Mr. Taft said that at one time the late Professor Lounsberry, of Yale University, had said to him that the most remarkable thing he knew of was the astounding capacity of the undergraduate mind to resist the acquisition of knowledge, and to those who dealt with public health problems the capacity of the popular mind to resist the indubitable proof of facts must seem equally amazing. In dealing with an epidemic of cholera in Manila, it was found that the river water was carrying the infection. To keep the natives from using this water an armed force of soldiers was kept on the ground; this, together with the enforcement of other sanitary regulations and the use of a serum that seemed

to be effective, soon controlled the epidemic. Manila was now a healthy place. When the bubonic plague was brought to the Philippines from Japan, it was found that rats and fleas were spreading the disease, and a crusade was started there which soon resulted in the eradication of the plague. It had been asserted at one time that there were from forty to fifty thousand lepers in the islands and they were treated with atrocious cruelty. Investigation showed that the number had been greatly exaggerated, and through the efforts of the health officers these unfortunates were placed on farms and made comparatively happy and contented. The story of the way in which they had dealt with amebic dysentery was equally interesting.

Coming to Panama, it had been estimated that before General Gorgas went there, seventy per cent. of the natives were infected with malaria, so that the chances were seven to ten that if a mosquito bit a native it would become a carrier of malaria. Under these conditions the prospect of getting rid of malaria seemed hopeless, yet Doctor Gorgas had accomplished this task. It was not accomplished inexpensively, but it was done effectively. It might also be recalled that the services of Doctor Terry, an officer of the Public Health Service, were asked for a few years ago to clean up the seaport of Guayaquil and to control an outbreak of yellow fever. A man belonging to the service had been making a successful fight against the hookworm in Porto Rico. During the Spanish American war, in an army of 120,000 men there were 20,000 cases of typhoid fever with a mortality of seven per cent. During the year 1912-13 an army of 18,000 men who had been treated with typhoid antitoxin were sent to the Mexican border, and only one case of typhoid fever occurred and that in a man who had not received the antitoxin. These facts had been dwelt upon to show that the Federal Government had a corps of medical men in the army, navy, and Public Health Service equal in point of ability to investigate disease, in point of experience in preventing disease, and in point of numbers, to any corps in the world.

The Federal Government had every facility for dealing with disease; it had its agents in every dangerous port in the world to make reports on health conditions; it conducted fifty quarantine stations in this country, practically all excepting that of New York. The New York health department and law were perhaps the best in the United States and no one could criticise the administration of the quarantine station. Mr. Taft wished to take this opportunity to say that he hoped the bills that threatened to curtail the effectiveness of the Public Health Laws in this State would be defeated. Returning to the quarantine, he said that this was peculiarly a National question since it affected foreign affairs and interstate commerce. It was a field which came under the Federal Government, but in which the State might act until Congress spoke. The statement that Federal control of the quarantine station was not constitutional was about as rational as the assertions of the antivaccination cranks. Under the present law, even if the State wished to conduct the quarantine, the Federal Government could step in at any time and take it over, as it had power un-

der the law to purchase the station. Such a transfer, say at \$2,000,000, would perhaps not be unwelcome to the New York State treasury. The objection that the Federal service was inadequate to conduct the quarantine station at New York, would not stand, for it was now conducting the service in other large ports and mere size presented no special difficulties. It was feared by some that the rigid regulations of the Federal service would prove inconvenient. There need be no fear on this score, for the regulations were varied to meet local conditions as they arose. Some one had believed that the Federal regulations did not include beriberi; they certainly could be made to include this disease as well as others. Again, it had been argued that the Federal Government could not interfere with the coastwise trade: Federal authority could be extended to coastwise trade just as to interstate commerce. Others held that there would be a lack of personal responsibility on the part of Federal officers for any particular locality. This was a fallacy; there was, in fact, a greater responsibility on the part of such officers, because politics were wholly eliminated; their places were not subject to change of administration; they had no local interests at stake and were uninfluenced by local opinion, and they had no object to attain by the concealment of actual conditions. There was no question that the quarantine station at the port of New York could be conducted more effectively and economically under the same governmental head as and in cooperation with the bureaus of immigration and customs.

It was true that New York was the largest port in the country and that most of the immigrants arrived there, but it was equally true that they did not stay there, but were distributed to all parts of the United States; hence the entire nation was directly concerned with the administration of the quarantine at this port. With the State administration of the quarantine, there was a division of authority that was not desirable. The Federal Government had made treaties with foreign nations involving questions of quarantine and immigration, and should logically be in possession of the instruments through which these treaties were to be enforced. They had been told that with the coming of warm weather and the close of the European war, they would be threatened with typhus and other diseases. When they faced the world to meet these conditions, it should be with a National and not a State system of quarantine. The transfer of the quarantine station of the port of New York might not be as simple matter as was supposed, hence there was all the more reason for agitation at this present time.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting, Tuesday, February 7, 1915.

The President elect, Dr. W. M. LESZYNSKY, in the Chair.

Deformity of the Skull with Optic Atrophy.—Dr. L. SHAPIRO presented this case which had been admitted to Mt. Sinai Hospital by Doctor Sachs, five weeks previously, with symptoms of chorea, associated with marked deformity of the skull and optic symptoms. The boy was thirteen years old, of Russian parentage; the father had somewhat ab-

normal changes of the skull, with prominence over the frontal region, but no optic symptoms; the child had a normal birth, and no peculiarity of the skull was noted; later the mother observed the eyes becoming more prominent and the peculiar shape of the head became evident; five years ago the boy had scarlet fever, complicated with severe nephritis, hematuria, and generalized edema; he could no longer see and the blindness was attributed to the scarlet fever; before that he was perfectly well; after that the unusual height of the skull, increase in breadth at the temporal region, and abnormally low ears became noticeable; this was no doubt due to premature ossification of the sutures of the vault which interfered with the normal expansion of this portion of the skull; the x ray showed a peculiar network of thinned out areas in the frontal region; this was due to absorption of the inner table of the skull, as had been shown at operation. As to the nature of this premature ossification, it had been observed that this condition had been noted in the ancestry of these cases and Carpenter had noted a case where four children in one family showed a similar condition; other congenital malformations were frequently present, such as congenital pulmonary stenosis and cyanosis of the face; ventral and abdominal herniæ, webbing of the fingers, polydactylism, etc. One case of dermoid cyst had been observed; this association with other congenital malformations and in family groups might argue for congenital origin; the x ray pictures showed enlargement of the pituitary fossa; this had been interpreted as being due to change in the pituitary gland, which by some action caused dystrophy; this patient had no other symptoms than ocular ones associated with deformity of the skull; the exophthalmos was evident; the right eye bulged more than the left; there was no nystagmus. In some cases dislocation of the eyeballs occurred; impairment of function in these cases was due to optic atrophy following neuritis; the origin of this neuritis was not well understood; because of the optic symptoms in this group of cases they were first observed by ophthalmologists. Von Graefe, in 1866, had recorded cases; some views as to the cause of the optic neuritis had been advanced; Virchow considered it due to meningitis at the base of the brain which caused neuritis and subsequent atrophy; other views were that it was due to the abnormal course of the internal carotid, the pressure causing atrophy; or, it might be occasioned by stenosis of the optic foramen which caused pressure and optic atrophy. Perhaps the cause might be the difference between the size of the skull and the growth of the brain and the consequent increased cerebral pressure; lumbar puncture was done in this case and there was no increase of pressure. Optic atrophy, when it occurred, usually occurred before the seventh year, because the greatest growth of the brain was before that age; it was more frequent in boys than in girls and more common in dark complexioned, sallow individuals. This boy had an organic heart lesion, due to several attacks of chorea; he was an intelligent boy, not at all mentally deficient.

Dr. FOSTER KENNEDY said that these cases were sufficiently rare to deserve consideration. Doctor Shapiro had given a very complete presentation.

One point which interested him was the reference to the optic nerve changes in these cases. Doctor Shapiro said the atrophy was of a consecutive character, following neuritis. Doctor Kennedy was not sure whether he meant papilloedema or retrobulbar neuritis. The question of the pathology of the exact processes occurring in these cases was important in view of the uncertainty as to the processes which produced changes in the optic nerve. In one case, the optic nerves were found to be white, in another pallor was present in the temporal region. That would point to the fact that loss of vision was not due to papilloedema. It might be produced by pressure of the bony ring on the nerve, a process analogous to the pressure produced by sinusitis and by frontal tumor.

Doctor ABRAHAMSON said the thanks of the society were due to Doctor Shapiro for his very able presentation. The interesting point in the disease was the causation of the fundus changes. Internal hydrocephalus failed to explain them in very many cases. Enslin, in forty-two cases, found twice double neuroretinitis, twice papilloedema on one side with neuritic atrophy on the other; twice an apparent primary optic atrophy; thirty-six times post-neuritic atrophy. Cases were reported of oxycephalus with open sutures except the coronal and open fontanelles; with congenital meningoceles; with changes in the eyegrounds essentially on one side. The problem was very important since it determined whether decompression or callosal puncture was advantageous, as Anton had suggested. Behr believed that the narrowing of the optic canals and the bony dislocation with displacement of the internal carotid artery and compression of the optic nerve by the pulsating artery, were the important factors. The gradual concentric diminution of the visual fields could also be explained that way. Central scotomata, as in Doctor Kennedy's case, were rare.

Address of Retiring President.—Dr. S. E. JELLIFFE began by stating that the Neurological Society was founded in 1872. After two years of stormy existence it was reorganized, and now represented the oldest society of its kind in the United States. It had a creditable history of forty-two years of active service, and he felt it a special mark of privilege to have been chosen president, and to have served two years. What measure of success attained had been due to them, the individual members. He had tried solely to direct their energies and to make a platform upon which they could range their work with that of their predecessors. And now, in relinquishing the leadership, he wished to tender to them his word of thanks with sincere appreciation for the support they had accorded him. Retiring presidents seemed to have left but few traces of their farewell utterances, for he was unable to find any guides which might be a lamp unto his feet in this most difficult of all tasks, namely that of uttering one's own funeral oration.

Turning to Holy Writ, therefore, for inspiration, he found that prophets had acquired much merit by foretelling what had already happened, and so in reviewing the work of the past two years, he would tell what he had in mind, what he *had* planned to do, when elected president.

Had they not meted out such good measure heaped and running over, he would not have been such a good prophet. In view of this wealth of material, therefore, he would not attempt any detailed recounting of it—most of them had contributed to it—but he would endeavor to give a somewhat rapid glance at the main trends: In the first place, the most striking feature of the material offered had been its great catholicity. All aspects of nervous structure and of functioning had received their attention, and a firm and progressive advance had characterized their activities. How best to show this wide range of work done presented many difficulties. To surmount these, and to get away from any statistical summary of the various papers and cases, he ventured to present the principles which guided his prophetic footsteps in leading their intellectual activities during the years of his office.

It had seemed feasible to regard the nervous system, speaking very broadly, as operating at three levels: through the course of ages these had been built up, not at all sharply delimited, but gradually and imperceptibly merging the one into the other, until this completed structure, through successive intergradations, had reached the dignity of the most important structure in the universe. These levels were familiar to them; he would speak of them as the vegetative, the sensorimotor, and the psychical levels, respectively, and would use the terms, vegetative neurology, sensorimotor neurology, and psychical neurology, not as indicating three different kinds of neurology, but rather one which, working at different functional levels, was finally integrated in that master spirit of evolution, the nervous system.

Through countless ages that inexorable experimenter, Nature, had built up a series of successful models into a unity, the chief cleavages of which were merely suggested in order that such a conception might make the facts more readily handled. To attempt to make any such scheme of cleavage a ground for exclusion of any one level, as sufficient to handle the facts of neurology, was to invite failure. Man was not solely a metabolic apparatus, accurately adjusted to an adaptive regulation of most marvelous efficiency and intricacy, through the vegetative neurological mechanism; nor did his sensorimotor functions make him solely a feeling, moving animal, seeking that which they called pleasure and avoiding pain, conquering time and space by the enlargement of his sensory possibilities and by the magnification of his motor powers; nor yet was he solely a psychical machine, which by means of a masterly symbolic handling of the vast horde of realities about him, had given him almost the power of reality itself. He was all three, and a neurology today that failed to interpret nervous disturbance in terms of all three of these levels, failed in its high mission. This society had lived up to this criterion throughout its history, and it had been the pride of each president that it had continued to carry out such a program.

During the last two years, they had presented, as contributions to the physicochemical level, much timely work, both new and important, on the vegetative nervous system. The foundations laid by Langley and the English school had been built largely

upon by the Vienna school, and all medical problems had had a new light thrown upon them by the more precise anatomical and physiological knowledge recently acquired in this field. Through the study of the reciprocal activities of the sympathetic and parasympathetic systems, the entire group of metabolic activities had become much more comprehensible. The active and delicate adjustments of the physical and chemical needs of the tissues were, as they had seen, dependent upon these structures. Tissue hyperplasias, such as were seen in dermatoses, cirrhoses, scleroses, carcinoses, gummatoses, etc., were the more readily explicable by means of this concept of the reciprocal activities of the vegetative nervous systems. The eminently practical problem or that which Eppinger and Hess had called the "vagotonic constitution" had been brought to their attention, and as a corollary flowing from these researches, some of the most striking syntheses had resulted.

Thus the activities of the whole group of the endocrinous gland disturbances had become comprehensible, and it was quite doubtful if a purely chemical concept, such as the hormone hypothesis, would handle the facts. The anatomical pathways, the synaptic integrations, with the other levels, showed readily why pain at a sensorimotor level might induce loss of tissue tone and furthermore enable one to trace the anatomical and physiological connection between repressed desires, acting at the symbolic or psychical level, and enteroptoses, gastropoptoses, vascular spasms and inequalities, skin atrophies and hypertrophies, and a host of changes in the body structures, a number of which had been shown there.

A new syndrome, pilous adiposity, had been presented before the society—an endocrinous constitutional anomaly. An entire revision of the whole embryology and anatomy of the hypophysis was a contribution from one of the society. The eminently practical problem of brain surgery, and some of the causes for disappointment after operations had been presented, in which the kernel of the whole situation, namely, localized cerebral swelling or tissue edema, received its chief illumination from the study of the vegetative system activities upon the cerebral vessels. Thus not only every field of medicine, but many problems in surgery, received most important clarification of the activities if the vegetative nervous system were taken into the mental grasp of the observer.

Reluctantly he passed over this oldest phylogenetic level even more hastily to glance at the summaries and new work at the vital level which the society had fostered during the past two years. Perhaps the most striking of all the work in the field of sensorimotor neurology had been that clustered about the problems of syphilis of the nervous system. Early in 1913, *Treponema pallidum* was discovered in the central nervous system, and demonstrated by one of their body. This discovery had settled the controversy relative to a host of problems in nervous syphilis. In rapid succession they had had presented before them the attempts made to reach the organism by specific therapy in the elaboration of the Swift-Ellis treatment and its modifications; a thorough résumé of the pathological features involved had been present-

ed, the peculiar lymphatic blockings demonstrated, which threw some light on the difficulties of cerebral tissue penetration, and a group of experiments shown looking forward to the best means of seeking tissue penetration by remedial agents in order to reach the syphilis organism.

This eminently practical problem of the treatment of all forms of nervous syphilis, suddenly reilluminated by the discovery of a causative factor, had also been clarified by a very full setting forth of contemporary experience from the chief clinics of Frankfurt and Hamburg. The society had reason to congratulate itself that one of its members was the chief discoverer of *Treponema pallidum* in the brains of paretics.

Of the newer syndromes in sensorimotor neurology which had been shown before them, might be mentioned dystonia musculorum progressiva, myotonia atrophica, cauda equina neuritis, and progressive lenticular degeneration. Most illuminating and progressive work in spinal cord tumors had been brought to their notice and a large mass of fascinating clinical material of spinal cord and brain lesions, which he would not burden them by relating. Cerebellar mechanisms and cerebellar localization had also claimed attention. Bárány's important researches in localization and clinical cerebellar diagnosis had received extended discussion; while the cognate subjects of midbrain tremors, the pathology of the motor phenomena of paralysis agitans seen as lesions of the cerebellar static equilibrium pathways, the demonstrations of the extrapyramidal tract signs in disordered cerebellar disturbances in chorea, and the cerebellar types of multiple sclerosis and their separation from related lenticular degeneration syndromes—these had all come before them.

Last, but not least, the society had not neglected the consideration of the most highly evolved and socially most valuable of all of the levels of the nervous system, i. e., the psychical or symbolic. This was the most active field in neurology today, and its relationship to the preceding phylogenetically older levels was being analyzed with bewildering activity. In no branch of medical science had the evolution of the concepts necessary to handle the facts been more active than in this particular field of psychical neurology. How rapid had been the change in formulations in the paranoia domain alone had been the subject of his inaugural address. An entirely new light had been cast upon the subject of the traumatic neuroses, and the unconscious factors of revenge had been laid bare. The psychogenic factors in a group of disorders heretofore too narrowly viewed in the light of sensorimotor level affections, due to vegetative level disorders, had most amply shown that the psychical levels must not only not be ignored, but were probably the most important, if not the determining factors in the initial causation of these disturbances. It had already been shown how emotional, i. e., psychical factors, produced marked reactions at vegetative levels, that such reactions were capable even under experimental control of inducing transitory and permanent tissue changes, as had been demonstrated following ligatures applied to the vagus, for the changes in the gastric mucosa. Thus

they had had presented the importance of psychical factors in epilepsy, in a group of tics, in tabes dorsalis, in spasmodic torticollis, in dementia præcox. Medicine was only on the threshold of this important field, in which an entirely new psychological scale, the Œdipus complex, had been applied to measure all social phenomena. This concept, which in general meant the instinctive biological direction of the reproductive instinct toward the parent of the opposite sex, and from the parent of the same sex and its subsequent deviation or sublimation toward the socially permitted object in the ideal love relation, and the development of the Christian ideal of brotherly love, with the building up of the social group on the basis of the freeing of the individual from the family neurotic romance, had been set forth in at least three different aspects. The interesting and important subject of comparative psychiatry had received illumination from a study of hysteria in a primitive folk, the Eskimo, while the problem of psychoses among the Jews had been presented in a masterly manner. The manic depressive psychoses among children had also received attention.

The pragmatic aspect of the whole psychoanalytic movement had been set forth by means of a comparison with certain factors in modern philosophy, as seen in the work of Bergson, the factor that made cures possible, not only in psychoanalysis, but in the entire domain of psychical neurology, which made up a minimum fifty per cent. of the entire practice of medicine, had received attention in a study on transference, while the ethical implications and socially constructive values of psychoanalysis had been amply set forth at their last meeting. With such a record, Doctor Jelliffe felt that they could pass on to even greater achievements in the year to come.

Address of the President Elect.—Dr. W. M. Leszynsky, in assuming the office of president, wished to express his thanks, also his appreciation of the honor conferred upon him. While it had been customary for the president elect to deliver a so called inaugural address or read a paper upon some neurological topic, he trusted they would pardon him if he established a precedent by dispensing with that time honored tradition. Having no new policy to announce, nor new scheme to outline, they would not be disappointed, he was sure, when he told them that he would limit himself to a few brief remarks.

Several years ago a former president elect had said in his address that the transactions of the meetings of the Neurological Society seemed to lack the animation and enthusiasm of former days, and he ascribed this to a phase of evolution, for want of a better explanation. There had never been any acrimonious discussion and harmony had always prevailed, but such a condition of affairs at that time, while apparently true, proved to be evanescent. Since then, neurology had become such a fascinating branch of medicine that it had attracted a larger proportion of practitioners and research workers than heretofore, the number of members in the society being greater than had ever been known in its history. At the present time, however, a pessimistic attitude was not justifiable, for there were many

fertile neurological fields awaiting development, which had not failed to interest an ever increasing number of zealous and industrious students.

On the other hand, they were still awaiting a satisfactory solution of the old but vitally important problem relating to the establishment and endowment of a special institution for the care and treatment of people of limited or moderate financial resources, who were afflicted with disorders of the nervous system. The lack of suitable and adequate provision for a large and rapidly increasing number of such unfortunates, who were ineligible for admission to a general hospital or institution for the insane, was more in evidence than ever. While this subject did not come strictly within the scope of their scientific deliberations, it was of such paramount importance at the present time that he would suggest that they, at least, present this aspect of medicosocial economics to the attention of all philanthropically inclined persons on all befitting occasions.

It would seem that this was an opportune time for a passing reference to the subject of psychanalysis, and it was not without some hesitation and personal misgiving that he touched upon this topic. It must have been evident to any unprejudiced observer that more time had been devoted to discussion (both polemical and uncomplimentary) in this field of endeavor, than was commensurate with the results, when they considered the antagonism it had engendered, and that its applicability was admittedly restricted. In consequence of the energy expended by its advocates and opponents, particularly the former, a new era seemed to have dawned upon them recently, in which neurology had become threatened with a subdivision into two specialties, namely, organic neurology and esoteric Freudism. Whether or no this was a significant sign of parlous times, it was impossible to state, but he was unwilling to admit that the majority of neurologists were sufficiently credulous seriously to entertain such a chimerical notion. Without entering into a discussion of the merits of such a revolutionary tendency, he wished to state that the New York Neurological Society would, nevertheless, continue to welcome the unorthodox agitators among its members, although the present administration had pledged itself to maintain its well established scientific and ethical standards.

Among the younger members of the society were many possessed of neurological training of a high order, to say nothing of ambition and enthusiasm, and who had been frequent and valued contributors at the meetings. There were others who undoubtedly possessed similar qualifications and much latent talent, but had remained inactive, probably through diffidence. Let them hope that this society would never suffer from a superabundance of latency, an unfortunate condition which had so often proved fatal to progress in other organizations.

It would always be their endeavor to encourage the younger men actively to participate in the scientific work. The presentation of clinical material demonstrating uncommon or rare types of disease of the nervous system would continue to be one of the essential features of their programs. In conclusion, he urged upon them regular and prompt at-

tendance at their meetings, and he bespoke their active support and cooperation, trusting that during the present year a new impetus would be given to neurological research through the energetic efforts of the members.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Lehrbuch der spezifischen Diagnostik und Therapie der Tuberkulose. Für Aerzte und Studierende. Von Dr. BANDELIER, Chefarzt des Sanatoriums, Schwarzwaldheim in Schönbühl bei Wildbad, and Prof. Dr. ROEPKE, Chefarzt der Eisenbahnheilstätte Stadtwald in Melsungen bei Kassel. Achte Auflage. Mit einem Vorwort von Wirkl. Geh. Rat Prof. Dr. R. KOCH, Exzellenz. Mit 25 Temperaturkurven auf 7 Lithographischen Tafeln, a Farb. Lith. Tafeln und 6 Textabbildungen. Würzburg: Verlag von Curt Kabitzsch, 1915. Pp. xiii+409.

While in the United States the use of tuberculin therapy as well as tuberculin diagnosis is rather on the decline, there seems to be in Germany an unabated enthusiasm about specific diagnosis and specific therapeutics in tuberculosis with the aid of culture products derived from the bacillus of tuberculosis. The present volume is the eighth edition in seven years. The first was published in 1908, and translations into English, French, Italian, Japanese, Russian, Spanish, and Portuguese have since appeared. The book is dedicated to the great master, Robert Koch, who honored a previous edition with a *Vorwort*.

How little certainty there seems to exist about tuberculin reaction is well set forth in the authors' unbiased exposition of the many theories on that subject, such as the toxin theory, amboceptor theory, the hypersensitive theory, the Deycke-Much theory, etc. As to why and when tuberculin supposedly acts as a specific remedy, the theories are perhaps even more numerous, and it would not be of any benefit to enumerate them in a review. The various well known methods of the utilization of tuberculin as a diagnostic means are carefully described in the book, but nothing new is brought forth, except perhaps a vigorous condemnation of the Calmette ophthalmic instillation test and its substitute (tuberculin-petrolatum).

To the specific therapy the authors devote the greater part of their work. They divide it into active immunizing remedies, such as old tuberculin, albumin-free tuberculin, new tuberculin TR, the various emulsions, Landmann's, Klebs', Beranek's, Rosenbach's, Spengler's, Deycke-Much's, and lastly, Friedmann's products; then into passive immunizing remedies which include Maragliano's serum, Marmorek's antituberculosis serum, Bruschettini's serum vaccine, tuberculosis serum "Hoechst," and the various serums derived from the streptococci. Lastly, the authors speak of the vaccine therapy devised by Spengler of Davos, known as *Immune Körper Therapie*. Admirable indications as to when and how tuberculin should be used in the various types of tuberculosis (pulmonary, intestinal, skin, glandular, etc.) are given and excellent results with relatively few failings are reported. To any one wishing to familiarize himself thoroughly with the present status of tuberculin diagnosis and tuberculin therapeutics in vogue in Germany, the book can be highly recommended for careful perusal.

The Diseases of Children. By HENRY ENOS TULEY, M. D., Late Professor of Obstetrics, Medical Department of the University of Louisville, Visiting Physician to the Masonic Widows' and Orphans' Home, Louisville, etc. With 106 Engravings and Three Colored Plates. Second Revised Edition. St. Louis: C. V. Mosby Company, 1913. Pp. 684. (Price, \$5.50.)

This book is not intended for the specialist, but is written to meet the needs of the general practitioner and student. The author has had special interest in the propaganda of pure milk and is one of the leaders in the movement. It

is not surprising, therefore, that much space is devoted to the production and handling of milk fit for the baby. To milk and infant feeding are devoted sixty-five pages in the body of the book and fifty-seven in the appendix; the methods advocated being those of the leading pediatricists of the country. The directions for the preparation of the various formulæ of cereal decoctions are clearly and fully given; but, while caloric feeding is described, one is unfortunately left with no opinion as to the author's conception of its value. Likewise the proprietary foods are mentioned, but no hint is given as to their particular value or specific harmfulness. Diseases of the ear and eye as they relate to early life are briefly described, and the treatment suggested is only such as can be carried out by the general practitioner. One is surprised to see no article on pylorospasm, which is a more common affection than true stenosis. In the treatment of diphtheria the dose advised is smaller than is now generally given and no mention is made of muscular or intravenous injections of the antitoxin. In the appendix many methods of milk modification based upon mathematical equations are fully given and the physician is advised to select, memorize, and use one of these. Some are so formidable, that it is not surprising that the doctor despairs and resorts to the proprietary foods. The chapters are well arranged for ready reference and so well printed that the eyes do not tire. The illustrations are, as a whole, well selected to illustrate the text. The book will well serve the purposes of the student and give in a concise form to the practitioner the latest information relating to the diseases of infancy and childhood.

Practical Sanitary Science. A Handbook for the Public Health Laboratory. By DAVID SOMMERVILLE, B.A., M.Sc., M.D., M.R.C.P. (Lond.), D.P.H. (Camb.), F.C.S., Assistant Professor of Hygiene and Public Health, With Charge of the Laboratories of Hygienic Chemistry and Physics, University of London King's College; Examiner in Bacteriology and Chemistry, B.Sc. (Public Health), University of Glasgow; Examiner in D.P.H., University of Aberdeen; etc. Second Edition. New York: William Wood & Co., 1915. Pp. viii-328. (Price, \$3.50.)

This work, taking in as it does the examinations of water in every phase of sanitation, of soil, air, and foodstuffs; giving concise descriptions of the methods to be pursued in such examinations, is highly recommended to the student undertaking advanced problems in sanitation. Many valuable suggestions are found in the pages of this book, and a laboratory technician could peruse it with profit. The language is simple, and the illustrations add much to the descriptive text.

Legal Principles of Public Health Administration. By HENRY BIXBY HEMENWAY, A.M., M.D., Fellow, American Academy of Medicine; Fellow, American Medical Association; Member, American Public Health Association, etc. Introduction by JOHN HENRY WIGMORE, LL.D., Dean, Northwestern University Law School; Illinois Commissioner on Uniform State Laws, etc. Chicago: T. H. Flood & Co., 1914. Pp. xxxvi-859.

The title of the work is happily descriptive of its contents. The author has not attempted to set forth the statutes or regulations of any of the jurisdictions, Federal, State, or municipal, by which the duties of the health officers are prescribed, but confines himself to a discussion of the legal principles governing not only their power, limitations, and liabilities, but also the fundamental organization of our complex system of government with its three coordinate branches, the executive, the legislative, and the judicial, thereby taking the work out of the class of those ephemeral productions whose usefulness is impaired if not destroyed with each change in the rapidly shifting field of statute law.

The work bears evidence of being the fruit of years of labor and study by a man who has made the subject his serious purpose in life. Equipped with a knowledge of the latest discoveries in the medical and scientific world, he brings to the legal aspect of the question a groundwork upon which intelligent legislation must be based and in the light of which judicial interpretation is bound to be moulded. Upon this groundwork, it seems reasonable to hope, and as well to assume, that legislation will develop along more efficient lines and at the same time eliminate many irksome

personal restraints which, in the light of present scientific knowledge, are known to be unnecessary.

The book is one which all health officers should carefully study as it cannot but broaden their comprehension of the complex system of laws under which their functions and powers are prescribed, defined, and limited, and as well will serve to point out many of the liabilities and dangers which constantly lurk in the path of their every day work. Moreover, the book should be in the hands of every legislator who assumes to direct or in any way influence health legislation.

In passing, it seems pertinent to observe that the almost complete silence of the work upon the great subject of suppression and elimination of venereal diseases, is a reproach to the legislative branch of the government and particularly to the medical profession, whose duty it is to educate the public to the point where an intelligent system of health administration would be devised to assist in this beneficial purpose.

Thirteenth Report from the Cancer Research Laboratories. (Being the Thirty-third Volume of the Archives.) Archives of the Middlesex Hospital. Edited for the Cancer Investigation Committee. By W. S. LAZARUS-BARLOW, M.D., F.R.C.P., Director of the Cancer Research Laboratories; Formerly Lecturer on General Pathology at the Middlesex Hospital and Pathologist and Lecturer on Pathology at the Westminster Hospital. London: Macmillan & Co., Limited; New York: The Macmillan Company, 1914. Pp. 140.

This is a collection of some fourteen separate papers dealing with the subject of cancer and its allied problems and, while it has some interest for the practitioner, most of the contributions are concerned with the research problems of the subject and appeal more especially to those engaged in such work. Among the more interesting papers for the general medical reader are two by Lazarus-Barlow; the first on comparative observations on changes in columnar and in squamous epithelium and in subepithelial tissues induced by the gamma rays of radium; the second reporting experiments upon the influence of platinum screens with a view to determining their value in the radium treatment of malignant disease. A. C. Morson also offers an interesting contribution on the changes which occur in malignant tumors on exposure to the gamma rays of radium. And finally, H. MacCormac and A. C. Morson report the results of the Wassermann test as applied to the serums in a considerable series of cases of carcinoma.

Transactions of the American Otological Society, Forty-seventh Annual Meeting. Atlantic City, N. J., May 27 and 28, 1914. Volume XIII. Part II. New Bedford, Mass.: Published by the society, 1914. Pp. 257-409.

This volume contains a list of the names of the members of the society, the minutes of the forty-seventh annual meeting, and the scientific program as presented. Judging from the character of the papers read and the free discussion that followed nearly all, the meeting must have been of unusual interest.

Interclinical Notes.

In the *Popular Science Monthly* for April, the physician will find a rich fund of scientific information based on the present war. The subjects treated include American vitality, health examinations, effects of war on capital, foreign trade, municipal problems, banking, etc. Mr. Byron W. Holt, discussing discontent as the fundamental cause of war, offers the following preventives:

1. Stabilize gold or adopt some other standard of value.
2. Take land values for public purposes.
3. Establish free trade between all countries.
4. Establish public ownership of all public utilities—railroads, street railways, telephones and telegraphs, electric light and gas companies, etc.
5. Liberalize our patent laws so that they will more promptly and fully benefit the masses and no less fully reward inventors.
6. Keep the initiative, referendum, and recall in force at all times. Direct legislation not only safeguards the rights and liberties of the people, but is valuable for

its educational features. It practically forces the voters to study public questions. It is as necessary in a republic as are public schools.

Mr. Holt says he is not alone in holding these views of the fundamental causes of discontent and wars and how to remove them.

* * *

There seem to us to be metaphysical obstacles to the motto adopted by the *National Humane Review* and printed, as usual, at the head of its issue for April, 1915: Universal Justice and Infinite Compassion. Such a device might suit an omnipotent and supreme intelligence, but it is a trifle ambitious for a finite weekly. Dr. Edward Wallace Lee's excellent communication on Physical Defect a Factor in the Cause of Crime (*NEW YORK MEDICAL JOURNAL*, December 26, 1914) is summarized in this issue. We can have only praise for a pronouncement on page 79, "Child labor is a National . . . disgrace." We were glad, too, to learn from page 80 that whipping is forbidden in the circus stables of Barnum and Bailey; whipping in this century is permissible only in the case of eggs, cream, and walnut trees.

* * *

Wouldn't it be nice and encouraging as to human intelligence if there was as much enthusiasm in our land about abolishing child labor and overwork for adults as there is about prohibition?

* * *

Thomas Gray Fessenden wrote *Only Human Nature* in the April *Red Book*, but perhaps it is the editor who is responsible for this awful sentence which occurs early in the story: "The seats are quite free to whomever cares to occupy them."

Meetings of Local Medical Societies.

MONDAY, May 10th.—New York Ophthalmological Society; Society of Medical Jurisprudence, New York; Roswell Park Medical Club; Williamsburg Medical Society, Brooklyn; New Rochelle, N. Y., Medical Society.

TUESDAY, May 11th.—New York Academy of Medicine (Section in Neurology); Federation of Medical Economic Leagues of New York; Medical Society of the County of Schenectady; Medical Society of the County of Rensselaer; Buffalo Academy of Medicine (Section in Medicine); Newburgh Bay Medical Society; New York Obstetrical Society (annual); Onondaga Medical Society.

WEDNESDAY, May 12th.—New York Pathological Society; New York Surgical Society; Alumni Association of Norwegian Hospital; Schenectady Academy of Medicine; Medical Society of the Borough of the Bronx; Richmond County Medical Society; Dunkirk and Fredonia Medical Society; Rochester Academy of Medicine.

THURSDAY, May 13th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Brooklyn Pathological Society (annual); Blackwell Medical Society of Rochester; Jenkins Medical Association, Yonkers (annual); Buffalo Ophthalmological Club; Jamestown Medical Society; Society of Physicians of Village of Canandaigua; Cayuga County Medical Society.

FRIDAY, May 14th.—New York Academy of Medicine (Section in Otolary); Society of Ex-Interns of the German Hospital in Brooklyn (annual); Flatbush Medical Society, Brooklyn (annual); Eastern Medical Society of the City of New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending April 28, 1915:

Brooks, S. D., Senior Surgeon. Granted three days' leave of absence from April 27, 1915.

Carrington, P. M., Surgeon. Granted five days' leave of absence from April 15, 1915. **Clegg, Moses T.,** Assistant Director. Granted three days' leave of absence from April 7, 1915. **Frost, W. H.,** Passed Assistant Surgeon. Directed, upon the request of the local immigration officer at Cincinnati, Ohio, to make examination of detained aliens, and certify to their physical condition. **Glover, M. W.,** Surgeon. Upon arrival of Surgeon William A. Korn, relieved from duty in charge of the Angel Island Quarantine, and directed to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for temporary duty. **Koch, Mathilde,** Special Expert. Directed to proceed to Spartanburg, S. C., for duty in pellagra investigations. **Krulich, Emil,** Passed Assistant Surgeon. Granted fourteen days' leave of absence en route to Washington, D. C. **Letton, H. P.,** Sanitary Engineer. Directed to proceed to Cincinnati, Ohio, for conference in regard to the examination of water, as used in the sanitary survey of the Ohio Valley watershed. **Lumsden, L. L.,** Surgeon. Directed to represent the service at a meeting of the Medical and Chirurgical Faculty at Baltimore, April 28, 1915. **Miller, K. E.,** Assistant Surgeon. Granted ten days' leave of absence en route to station at Fredonia, Kansas. **Murlin, J. R.,** Biochemist. Directed to proceed to Washington, D. C., for conference with regard to special studies of pellagra now in progress at Spartanburg, S. C. **Oelsen, Robert,** Passed Assistant Surgeon. Relieved from further duty at the Hygienic Laboratory, to be effective April 8, 1915. **Preble, Paul,** Passed Assistant Surgeon. Directed to proceed to Florence, Ala., for investigation of typhoid fever situation in that city. **Rucker, W. C.,** Assistant Surgeon General. Directed to proceed to Columbia, S. C., to confer with the health officer of the State of South Carolina relative to proposed draft of the interstate quarantine regulations. **Slaughter, W. H.,** Assistant Surgeon. Granted thirty days' leave of absence on account of sickness, from April 8, 1915. **Stewart, H. V.,** Sanitary Bacteriologist. Directed to proceed to certain towns in Pennsylvania for the purpose of collecting and examining samples of water taken by common carriers for passengers in interstate traffic. **Yarbrough, H. C.,** Assistant Surgeon. Directed to attend the school for health officers of the State of Kansas, at Rosedale, April 28, 1915.

Boards Convened.

Boards of medical officers convened to meet on Monday, May 10, 1915, at 10 o'clock a. m., for the physical examination of candidates for the position of district superintendent in the coast guard, as follows: Marine Hospital, Detroit, Mich. Detail for the board: Senior Surgeon H. W. Austin, chairman; Surgeon H. W. Wickes, recorder. Marine Hospital, Stapleton, N. Y. Detail for the board: Senior Surgeon George W. Stoner, chairman; Passed Assistant Surgeon C. P. Knight, recorder. Marine Hospital Office, Philadelphia. Detail for the board: Senior Surgeon Fairfax Irwin, chairman; Assistant Surgeon Louis Schwartz, recorder. Marine Hospital, Chicago, Ill. Detail for the board: Surgeon J. O. Cobb, chairman; Passed Assistant Surgeon J. M. Gillespie, recorder. Marine Hospital, Chelsea, Mass. Detail for the board: Surgeon B. W. Brown, chairman; Acting Assistant Surgeon B. P. Stookey, recorder. Marine Hospital, Portland, Maine. Detail for the board: Surgeon H. S. Mathewson, chairman; Acting Assistant Surgeon A. F. Stuart, recorder. Marine Hospital Office, Galveston, Texas. Detail for the board: Surgeon L. P. H. Bahrenburg, chairman; Surgeon R. L. Wilson, recorder. Marine Hospital Office, Providence, R. I. Detail for the board: Passed Assistant Surgeon E. R. Marshall, chairman; Acting Assistant Surgeon M. W. Houghton, recorder. Marine Hospital, Savannah, Ga. Detail for the board: Passed Assistant Surgeon J. R. Ridlon, chairman; Acting Assistant Surgeon A. B. Cleborne, recorder. Marine Hospital Office, Norfolk, Va. Detail for the board: Assistant Surgeon L. L. Williams, Jr., chairman; Acting Assistant Surgeon R. W. Browne, recorder.

Board of medical officers convened to meet at Newbern, N. C., May 3, 1915, for the purpose of making a physical examination of an officer of the coast guard to determine his fitness for promotion. Detail for the board: Acting

Assistant Surgeon R. S. Primrose, chairman; Acting Assistant Surgeon R. D. Jones, recorder.

Board of medical officers convened to meet at the marine hospital, Chicago, at the call of the chairman, for the re-examination of an alien. Detail for the board: Surgeon J. O. Cobb, chairman; Passed Assistant Surgeon J. M. Gillespie, member; Assistant Surgeon C. L. Williams, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending May 1, 1915:

Ashburn, Percy M., Major, Medical Corps. Relieved from duty with the Panama Canal, to take effect as soon after June 1, 1915, as his services can be spared, and after the expiration of such leave of absence as has been or may be granted him, will proceed to the Walter Reed General Hospital, Washington, D. C., and report to the commanding general for duty. **Brechemin**, Lewis, Jr., Major, Medical Corps. Granted four months' leave of absence, to take effect on or about May 10, 1915. **Carman**, Russell D., First Lieutenant, Medical Reserve Corps. Resignation of his commission has been accepted by the President, to take effect April 23, 1915. **Culler**, Robert M., Captain, Medical Corps. Assigned to a permanent station at Fort Mackenzie, Wyoming, and upon the completion of the temporary duty at Fort Robinson, Nebraska, assigned to him in paragraph 36, special orders No. 75, March 31, 1915, War Department, will proceed to Fort Mackenzie accordingly; leave of absence, in special orders No. 90, April 19, 1915, War Department, is extended one month. **Maus**, L. Mervin, Colonel, Medical Corps. Relieved from duty at Headquarters, Eastern Department, to take effect May 1, 1915, and will then proceed to his home preparatory to retirement from active service. **Maynard**, Edwin B., First Lieutenant, Medical Reserve Corps. Leave of absence for three months has been granted. **Plummer**, William W., First Lieutenant, Medical Reserve Corps. Resignation of his commission has been accepted by the President, taking effect April 28, 1915.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the week ending April 24, 1915:

Boland, Micajah, Passed Assistant Surgeon. Detached from the *Iris* and ordered home to await orders. **Costello**, C. E., Assistant Surgeon, Medical Reserve Corps. Detached from the Navy Recruiting Station, Chicago, Ill. **McLean**, A. D., Surgeon. Commissioned a surgeon from January 21, 1915. **Parham**, J. C., Passed Assistant Surgeon. Detached from the Navy Yard, Charleston, S. C. **Pugh**, W. S., Surgeon. Commissioned a surgeon from June 25, 1915. **Ryder**, C. E., Surgeon. Commissioned a surgeon from December 15, 1915. **Stenhouse**, H. M., Assistant Surgeon, Medical Reserve Corps. Detached from the Naval Medical School, Washington, D. C., and ordered to the *Iris*.

The following named assistant surgeons in the Medical Reserve Corps have been detached from the Naval Medical School, Washington, D. C.: William McKinney, E. L. Matthews, J. F. Neuberger, W. E. Lawhead, A. L. Bass, Arthur Freeman, A. R. Barrow, J. M. Quinn, J. H. Harris, C. F. Glenn, A. G. Thompson, G. E. Faulkner, N. M. McClelland, R. L. Natkemper, and A. E. Mann.

Births, Marriages, and Deaths.

Born.

O'Dea.—In Erie, Pa., on Saturday, April 24th, to Dr. and Mrs. Charles A. O'Dea, a daughter.

Married.

Ash—Brown.—In Montreal, Canada, on Thursday, April 15th, Dr. James Earle Ash, of Boston, Mass., and Miss Esther Marguerite H. Brown. **Diefendorf—Mann**.—In Troy, N. Y., on Tuesday, April 20th, Dr. Burke Diefendorf, of Hillsdale, N. Y., and Miss Bertha Adelaide Mann. **Giannini—Thorwick**.—In Redwood

City, Cal., on Tuesday, April 6th, Count Niso Giannini, of Milan, Italy, and Dr. Martha G. Thorwick. **Gilbert—Wilken**.—In Gulfport, Miss., on Thursday, April 22d, Dr. William J. Gilbert, of New Orleans, La., and Mrs. Bertha Wilken. **Hanawalt—Mortenson**.—In Galesburg, Ill., on Tuesday, April 20th, Dr. Casper G. Hanawalt and Miss Anna Mortenson. **Haupt—Morgan**.—In Chicago, Ill., on Tuesday, April 20th, Dr. Walter Haupt and Miss Mary Alden Morgan. **Lambert—Leece**.—In Detroit, Mich., on Thursday, April 15th, Dr. Walter C. Lambert, of Wyandotte, Mich., and Miss Jennie Leece. **McFadden—Imbs**.—In St. Louis, Mo., on Tuesday, April 27th, Dr. James F. McFadden, of Foxboro, Mass., and Miss Olivia Imbs. **McNeil—Peck**.—In New York, on Wednesday, April 14th, Dr. Walter H. McNeil, Jr., of Mt. Vernon, N. Y., and Miss Vivian Marguerite Peck. **Parker—Stark**.—In Winthrop, Mass., on Saturday, April 17th, Dr. Raymond Brewer Parker and Miss Helen Frances Stark. **Plassman—Brill**.—In Centralia, Ill., on Thursday, April 8th, Dr. Walter F. Plassman and Miss Frances Brill. **Ray—Canney**.—In Annapolis, Md., on Saturday, March 20th, Dr. Daniel P. Ray and Miss Olivia Canney. **Ryan—McCrudden**.—In Philadelphia, on Thursday, April 15th, Dr. William J. Ryan and Miss Mary McCrudden.

Died.

Bell.—In Due West, S. C., on Sunday, April 18th, Dr. Jesse R. Bell, aged eighty-three years. **Brusstar**.—In Philadelphia, on Sunday, April 25th, Dr. Henry B. Brusstar, aged sixty-five years. **Faison**.—In Faison, N. C., on Wednesday, April 21st, Dr. John M. Faison, aged fifty-five years. **Ford**.—In Stratford, Ont., on Monday, April 19th, Dr. George Ford, aged thirty-eight years. **Ford**.—In Indianapolis, Ind., on Wednesday, April 21st, Dr. James H. Ford, aged sixty-seven years. **Gaffney**.—In Bridgeport, Conn., on Monday, April 26th, Dr. James Alfred Gaffney, aged forty years. **Gale**.—In Chestnut Hill, Mass., on Tuesday, April 27th, Dr. Arthur E. Gale, aged forty-six years. **Gilbert**.—In Bath, N. Y., on Monday, April 26th, Dr. Horatio Gilbert, of Hornell, N. Y., aged eighty years. **Hennessy**.—In LaSalle, Ill., on Friday, April 23d, Dr. Margaret E. Hennessy, aged fifty-eight years. **Hoffmann**.—In Baltimore, Md., on Sunday, April 25th, Dr. Robert Hoffmann, aged fifty-five years. **Holmes**.—In Asheville, N. C., on Sunday, April 18th, Dr. Frank H. Holmes, aged forty-four years. **Hurlbut**.—In Napa, Cal., on Monday, April 12th, Dr. Edwin T. M. Hurlbut, of Sebastopol, Cal., aged eighty-seven years. **Knight**.—In Peekskill, N. Y., on Wednesday, April 21st, Dr. Charles Calvin Knight, aged eighty-two years. **Lenhart**.—In Columbus, Ohio, on Wednesday, April 21st, Dr. William C. Lenhart, aged eighty-five years. **MacDonald**.—In Boston, Mass., on Tuesday, April 27th, Dr. Archibald Elexis MacDonald, aged eighty-eight years. **Mehegan**.—In Taunton, Mass., on Wednesday, April 21st, Dr. Daniel J. Mehegan, aged forty-five years. **Miller**.—In Des Moines, Iowa, on Thursday, April 22d, Dr. W. L. Miller, aged sixty-nine years. **Ogden**.—In Toronto, Ont., on Thursday, April 22d, Dr. William Winslow Ogden, aged seventy-eight years. **Olsten**.—In Manti, Utah, on Sunday, April 18th, Dr. William H. Olsten, aged sixty-seven years. **Osher**.—In Brooklyn, N. Y., on Friday, April 23d, Dr. Joseph W. Osher, aged twenty-five years. **Patterson**.—In Boulder, Colo., on Friday, April 16th, Dr. John S. Patterson, aged thirty-six years. **Phinney**.—In Wappingers Falls, N. Y., on Tuesday, April 20th, Dr. Lorenzo M. Phinney, aged seventy-four years. **Rauch**.—In Johnstown, Pa., on Monday, April 19th, Dr. William Rauch, aged sixty-five years. **Siffert**.—In Canton, Ohio, on Sunday, April 25th, Dr. Thurman C. Siffert, aged forty-six years. **Smith**.—In Portland, Me., on Saturday, April 24th, Dr. Fred Milton Smith, aged thirty-six years. **Spence**.—In Toronto, Ont., on Monday, April 19th, Dr. James Spence, aged sixty-one years. **Stroud**.—In Douglas, Mich., on Friday, April 23d, Dr. Harley A. Stroud, aged sixty-seven years. **Swygert**.—In Greenwood, S. C., on Tuesday, April 20th, Dr. Sanders L. Swygert, aged fifty-five years. **Walsh**.—In Bay City, Mich., on Thursday, April 22d, Dr. Charles A. Walsh, aged seventy-four years. **Wetherill**.—In Bluffton, Ohio, on Wednesday, April 21st, Dr. Ira R. Wetherill, aged sixty-one years.

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A TREATMENT FOR INOPERABLE CANCER

A Preliminary Report.

BY S. P. BEEBE, PH. D., M. D.,
New York.

Professor of Experimental Therapeutics, Cornell University.

The treatment of patients suffering from inoperable cancer is one of the most difficult problems in medicine today. Approximately 75,000 persons died in the United States during the last twelve months from some form of this disease. While there are no available statistics, I believe it is a conservative estimate to state that, with our present methods of treatment, at least eighty per cent. of all persons in whom develop malignant tumors, ultimately reach the inoperable, incurable stage.

The methods of treating this eighty per cent. are admittedly unsatisfactory. Too often the treatment becomes merely the administration of gradually increasing quantities of morphine, a plan which frequently defeats its own purpose. If we proceed on the basis that the prolongation of life and relief of suffering is a desirable end, the injudicious use of opiates has distinct limitations. A variety of therapeutic agents such as serums, vaccines, toxins, and various methods of chemotherapy have been suggested and widely used during recent years. Each new idea is greeted with both hope and skepticism by the medical world. The lay press caters to the extraordinary public interest in this matter and often gives to the invalid and his friends unwarranted and uncritical statements of the efficacy of these methods; so marked is this tendency that investigators in this field at times find themselves hampered in their work and their professional standing jeopardized by the embarrassing notoriety which follows publication of their results.

It is, therefore, with great hesitation and a keen sense of responsibility that the writer ventures to put before the medical profession a new treatment for inoperable cancer. Coupled with this is a hope that his action in the matter will be judged solely on the data presented in this communication, and not by the inferences or deductions of uncritical persons.

The method in question is not original with the writer. During the last year certain modifications and possible improvements have been made, but the fundamental idea and the composition of the therapeutic agent were originated by Alexander Horowitz, Ph. D., an Austrian biologist and chemist.

Somewhat more than two years ago Doctor Horowitz asked Dr. James Ewing, Professor of Pathology, Cornell University, and the writer to investigate the efficacy of his method for the treatment of malignant growths. The writer, at that time, visited several patients who had been treated by this method, but was not impressed with the belief that the results warranted further investigation. Later on a new request was made, followed by a further examination of treated cases. After repeated examinations the writer became convinced that the results shown were not such as might reasonably be expected to occur in the natural course of the disease, and it was determined, after consultation with Doctor Ewing, to put the method to a test in certain cases in the General Memorial Hospital. Such a proceeding is not new in the history of cancer research. The cancer research institutions of England and Europe, namely, the Imperial Cancer Research Fund of London, the Middlesex Hospital, and the Institution at Heidelberg have from time to time investigated the merits of various empirical methods commonly reputed to be of value in the treatment of inoperable cancer. It seemed to us that our responsibilities demanded that we should follow a similar course with reference to the treatment devised by Doctor Horowitz. As administered by Doctor Horowitz, the treatment consisted of the repeated application of a poultice to the affected parts and the administration internally in the form of an extract, either as a liquid or as a pill, of certain substances contained in the poultice itself. The application of the poultice was followed by an intense reddening of the skin and, if the application was prolonged in the beginning of the treatment, blistering might be produced. It had the effect of active counterirritation. However, the effect went farther than this. The malignant mass in many cases gradually became edematous, softer than before, and sections of tissue taken in and about the tumor showed that the lymphatics were engorged with leucocytes, and if the skin was broken there was a profuse serous discharge. The exudate which later on was produced in considerable quantities in the treated area contained large amounts of broken down cancerous material, serum, and leucocytes. The leucocytes were mainly of the large and small mononuclear type. There was at the same time an improvement in the general condition of the patient, evidenced by the relief from pain, increase in appetite, and a marked improvement in the toxemia or cachexia accompanying the disease. Some of the patients examined by the writer before the treatment was begun in the hospital, had large, open, ulcerated tumors which previously had been the seat of active infection accompanied by the disagreeable odor as-

sociated with such a condition. By this treatment, these infections were markedly influenced and the odor almost entirely disappeared. It is not the purpose of the writer, however, to describe any of the patients except those who have been treated under his immediate supervision.

The therapeutic agent employed in this treatment is a complex one, and it is believed that it has not been heretofore employed in the treatment of cancer. The powder from which the poultice is made contains a considerable number of substances of plant origin. Seeds, roots, bark, and flowers taken from a number of different plants are prepared in the form of a powder, from which Doctor Horowitz made a poultice. The powder contains the following substances: *Menyanthes trifoliata*, *Melilotus officinalis*, *Mentha crispa*, *Brassica alba*, *Anemone hepatica*, *Viola tricolor*, *Anthemis*, *Fructus colocythidis*, *Lignum quassiae*, *Urtica dioica*, *Radix rhei*, *Hedge hyssop*.

The reasons which moved Doctor Horowitz to include these substances and exclude others form no part of the present discussion, which deals only with methods and results. Many of them are not commonly used in medicine and their pharmacological action has not been investigated in detail.

A great variety of poultices, plasters, and chemical escharotics have been used in the treatment of malignant disease, and without doubt many of them are of value in treating some forms of epithelioma, but with this method there seems to be a possibility that constitutional effects are obtained. The general improvement of the patient seems to be somewhat greater than might be expected from the application of a local irritant or the cleaning up of superficial infection. It is reasonable to suppose that such improvement as has been observed must be caused by the absorption through the skin of substances dissolved or extracted from the agents in the poultice.

Accordingly, extracts of the powder were made and administered subcutaneously to animals to obtain the local and general effect. At the point of injection in normal tissue an active local reaction is produced; this reaction is evidenced by swelling, redness, heat, and tenderness. Then follows a general leucocytosis with a relatively high lymphocytosis, some rise in temperature, and occasionally, in human subjects, a chill of varying intensity and duration. Now if the local area which receives the injection is examined microscopically, there are found all the characteristics of a moderately acute inflammatory reaction with a relatively large leucocytic infiltration. When such extracts were injected directly into a transplantable rat sarcoma, the characteristic reaction followed and was accompanied by a peculiar necrosis of the tumor cells. When the skin over the tumor, prior to the injection, is ulcerated, the affected area rapidly degenerates and a mass of necrotic tissue is discharged, followed by healing, while if the skin is not broken or ulcerated, the reaction following the injection produced a marked infiltration of serum and leucocytes, particularly around the borders of the tumor, the tumor itself was gradually absorbed, and there was an apparent complete restoration of normal cellular conditions. Rats do not seem to be as susceptible as human beings to the injections of these extracts,

and, to produce such results, it requires relatively a larger dose than has been employed heretofore in the treatment of human patients.

Subcutaneous injections of this extract have to a considerable extent displaced the use of the poultice, and it has the obvious advantage of permitting a more certain dose, of bringing this therapeutic agent directly in contact with the growing border of the malignant cells, and producing in the depths of the tumor rather than on its surface an intense reaction, which appears to be unfavorable for the continued growth of the tumor. When these injections were first begun in human subjects, they were always confined to the growth itself. More recently they have been given subcutaneously in the arm, and it has been interesting to note that when so given there has been observed fairly definite reactive responses in the growth; these reactions in the growth are evidenced by swelling, temporary increase in pain, followed a few hours later by a considerable relief from pain, and in some forms of tumor by softening of the growth and a gradual diminution in its size.

It is unnecessary to comment upon the great advantage which such a method of administration must possess over purely local injection into the tumor. The next step is to determine whether the extract may not safely be given intravenously, and, thereby, do away entirely with the local reaction. Experiments upon this point are now in progress, and it may be said that a dose twelve times as large as that given to a human subject has been given intravenously to a dog, causing no marked disturbance to the circulation or to the excretory organs. Nevertheless, we are not as yet ready to employ this method in the treatment of human subjects.

In presenting the brief case reports which accompany this statement, it should be borne in mind that the writer is making a preliminary report only, and that his own ideas and conclusions, as far as he has stated them, are subject to change and revision upon further experience.

Certain of the cases here presented have been those of private patients who have not been at any time in a hospital. Another group of cases has been treated in the General Memorial Hospital; a third group of cases, somewhat different in character, has been treated in the Polyclinic Hospital with the assistance of Dr. J. Wallace Beveridge.

CASE I. German, aged sixty years, rodent ulcer of the forehead. Diameter approximately one and one half inch, surface ulcerated and bleeding. Patient had had x ray treatment with some improvement. The number and doses of the x ray exposures were not known. From my observation it appeared that the x ray gave a little temporary relief without any permanent effect. Treatment in this case was with the poultice. Ten poultices were applied on different days, for varying lengths of time; following the application of poultices, an ointment made from the same powder as in the poultices was applied to the surface. In four weeks the edges were healing, and in eight weeks the lesion was completely healed.

CASE II. Man, aged sixty-two years; history of multiple epitheliomas of the skin, involving various portions of the face which developed on the base of a chronic eczema. Some of these epitheliomas were treated by the x ray with apparent success. Another had been removed by operation. The lesion presented for treatment was on the left temple which had already been overtreated by x ray. This case did not respond to treatment as rapidly as the one first cited. It is possible that the low vitality of the tissues

involved, resulting from the over exposure to the x ray, was to some degree responsible for the unusual difficulty observed in the subsequent treatment. The treatment in this case was by the application of poultices and the ointment already described. The borders of the lesion broke down, with a considerable discharge of serum upon the surface. A period of approximately two and a half months ensued before healthy granulation tissue formed; then the lesion healed and remained so to date (over six months ago).

CASE III. Woman, aged fifty-two years, rodent ulcer on the forehead above the right eye, involving the right eyebrow. History of eleven years' duration, with increase of growth during recent months. Whole area involved, about as large as a silver dollar. The borders of this growth had been treated nearly a year before with an electric cautery, giving temporary improvement; more recently the growth had extended practically to its original limits at a more rapid rate than previously. The same method of treatment, as in the earlier cases, was followed with a result that in about six weeks the lesion had entirely healed and remained so to date.

The next group of cases comprises those treated in the General Memorial Hospital. These represent the most hopelessly incurable and inoperable group of patients, and form the most difficult group in which one might expect any therapeutic benefit.

CASE IV. Woman, aged thirty-six years, had a very rapidly growing recurrent, scirrhous carcinoma of the right breast, involving the supraclavicular lymph nodes and tissues of the shoulder. Same treatment followed as given to patients previously described; large poultices applied to the growth, and in this case also a few exposures to the x ray.

The growth continued to increase rapidly in size, the patient remaining under treatment for about two months. During this period, as far as could be determined, there was no beneficial effect to be observed, and the patient died.

CASE V. Woman, aged forty-two years; a recurrence of carcinoma of the left breast operated upon one year previously; the recurrence being composed of a hard mass approximately two and one half inches in diameter on and above the sternum, about the fourth rib. Patient was treated with poultices and by a few x ray exposures. The malignant tissue broke down and formed an ulcerated area about one and one half inch in diameter and one inch deep. Patient did not enjoy living in the ward in the hospital, and preferred not to stay there unless her recovery could be assured. Upon being refused such assurance, the patient left the hospital; while her subsequent history was not known, it appeared definitely certain what it must have been.

CASE VI. Man, aged fifty-eight years, with large inoperable cancer, involving the base of the tongue, right tonsil, with large glands in the right side of the neck. Patient had been in the hospital for some time, under various forms of treatment, all of which proved to be without effect. Patient was having severe pain, could swallow only with difficulty, was rapidly losing weight, and the fatal outcome seemed to be a matter of only a few weeks. He was placed under treatment, poultices were applied to the glands on the right side of the neck, and an extract of the poultice material swabbed over the ulcerated area of the tongue and tonsil; this patient likewise had an occasional x ray exposure. Following this treatment, considerable masses of broken down material were discharged from the ulcerating surfaces of the tongue and tonsil, the disagreeable foul odor was almost entirely obliterated, the growth in the glands in the neck decreased in size, and the tissues of the neck relaxed to such a degree that the patient was enabled to swallow freely. Nutrition began to improve, while the circumference of the neck at the thyroid cartilage, which had been seventeen and a quarter inches at the beginning of treatment, diminished to fourteen and one half inches. Later his general condition became worse, running a temperature of 99.5° to 101° F.; in spite of the fact that he was able to take plenty of nourishment, he lost weight. During the latter part of this treatment a few injections were given into the indurated tissue of the right side of his neck; these softened, and gradually began to regress. He died about seven months after the treat-

ment had been begun. The final findings were: Externally his neck on the right side appeared to be normal in size and feeling; the large glands present at the beginning of the treatment could no longer be ascertained. At the autopsy, it was discovered he had an extensive tuberculous bronchopneumonia of both lungs, which was the primary cause of death. There was at the base of the tongue an extensive carcinomatous ulcer with clean edges and comparatively clean base which did not interfere with his swallowing. In the tissues about the right tonsil and in the right side of the neck at a point formerly the seat of the carcinomatous infiltration, were found a few areas still involved with carcinoma cells, which showed on section marked regressive changes. In this case interference with the continued rapid growth of the cancer in the neck took place, and caused marked regressive changes to occur. If the tuberculous involvement had not been present, it seems probable, with the marked regressive changes observed, this patient might have continued to improve and his life been considerably prolonged.

CASE VII. Man, aged fifty years, had cancer involving floor of the mouth on the right side, in which there was a large tumor the size of an English walnut, with a fungated surface; a large growth on the external side of the jaw, extending to the angle of the jaw and into the tissues on the right side of the neck two inches below the angle of the jaw. This was a large rapidly growing hard mass, histologically an epithelioma. Patient had been in the hospital some months, had had two operations, and a variety of other treatment including toxins, radium, and x ray; was suffering intense pain, had great difficulty in opening his mouth sufficiently to take fluids, and was in a most deplorable condition. Treatment was begun with poultices, but about this time, however, we had perfected the extract for injection to such a degree that it could be safely employed in his treatment. After about two weeks' treatment the tumor had softened considerably, being engorged with serum and leucocytes. Then a heavy x ray exposure with a Coolidge tube was given. Again resuming the treatment with extracts of the poultice, and later applying a poultice directly against the mass in his mouth, the external tumor became very soft, and it was incised in two places. Considerable quantities of an exudate composed of cellular detritus, serum, and leucocytes were discharged. This drainage continued for some time, the tumors constantly decreasing in size, when finally there developed a fistula from the largest external tumor directly through the floor of the mouth. All these discharging foci ultimately healed, however, with only a small ulcer remaining in the floor of the mouth, at a point that had been the seat of the cauliflower mass below the tongue.

The patient gained in weight, he was entirely free from pain, and was in good general condition. From casual examination it appeared that he was entirely free of the growth. The gums of the lower jaw about the incisors were spongy, and x ray examination showed the bone to be involved at this point.

The patient had been spending only a few days in the hospital each week, preferring to live at home. Finally he refused to come to the hospital, because of his greater freedom and comfort in his own home. Notwithstanding this attitude, repeated efforts were made to keep in touch with him.

There is no question that in this Case VII a very decided improvement was made in the patient's health, as well as a very marked reduction in the bulk of the malignant tissue which he carried when admitted for treatment. His precise condition at present is not known.

CASE VIII. Man, aged sixty years, with large epithelioma arising in the skin and involving the entire right side of the face, extending upward to a line level with the upper border of the ear, including the right eyebrow and the lower margin of the orbit, the inferior border falling below the level of the ramus of the jaw.

This was a very large, rapidly growing epithelioma, with the entire surface badly ulcerated, bleeding, and severely infected. The right eye was swollen and shut, the left corner of the mouth was opened a little just enough to allow the introduction of a little fluid food. When the patient was first admitted to hospital, the growth was much smaller and he was treated as an outpatient with

radium; this treatment produced temporarily a markedly beneficial effect, with almost complete healing over the surface of the growth. But unfortunately, a few weeks later, the tumor recurred, growing with unusual rapidity, in spite of the heretofore useful methods of treatment. The patient was admitted to a bed in the hospital, and for several weeks no treatment other than the administration of morphine and application of surgical dressings to the ulcerated area had been followed. His general condition was very bad. He was losing weight rapidly, able to take little if any nourishment; he was confined to bed, and death was believed to be only a matter of a few days.

This patient was treated by injections of the extract, the application of poultices, and a few exposures to the x ray from a Coolidge tube. It was noted that the injections caused a softening of the tumor and an increase in the serous discharge. Cultures were taken from the infected area and a bacterial vaccine was made. Several injections of this vaccine were given subcutaneously. During the first two weeks of treatment an exudate consisting of a large amount of broken down tissue began to discharge, and as treatment continued this disintegrating process kept up until eventually the entire tumor mass had been evacuated, leaving a comparatively clean ulcerated area, which in depth extended nearly to the centre of the skull. The temporal arch was entirely destroyed by the cancer. The borders were not indurated and eventually showed distinct evidences of healing about the entire circumference of the ulcer. Following this cleaning up process, the patient's general condition improved markedly. He could again take solid food, began to gain in weight and strength, and was able to be up and about the hospital, assisting in minor duties. This improved condition continued for several weeks.

The infection was difficult to control and occasionally pockets of pus appeared under the jaw, in the soft tissues of the neck. These were incised and drained, and eventually healed.

The application of the violet ray from a quartz lamp for a period of thirty minutes, was followed by a great deal of pain. The tissues after this treatment were not as healthy as they had been heretofore, and although the ulcer showed no tendency to increase in size, the central area gradually eroded and became deeper; there was an extensive area subject to infection with destruction of the ganglia at the base of the brain, causing severe pain.

Practically one half of his face was all that remained intact, leaving the affected side almost completely destroyed. A hemorrhage started from one of the denuded vessels, and impaired his resistance so that he died shortly afterward. Although he was in a desperate condition at the beginning of treatment, nevertheless it seemed probable that beneficial effect was produced upon the course of the disease and upon the general condition of the patient.

CASE IX. Man, aged fifty-five years, had recurrent epithelioma of the lip, involving the tissues of the neck upon the left side with a large growth in the cheek above the ramus of the jaw on the left side. Patient had two operations; there was no recurrence at the primary seat of the disease. Following the second operation, fairly constant treatment by exposure to the x ray was instituted. All the tissues in and about the tumor were infected, and the growth was beyond control. Treatment in this case was by means of local injections of the extract into the tumor, application of poultices, and a further exposure to the x ray from the Coolidge tube. What followed was very interesting; the tumor mass softened and began to break down, quantities of degenerated tumor cells with a profuse serous exudate were discharged, the growth above the ramus of the jaw regressed and never did recur; all but one of the sinuses healed.

This patient had had a good deal of x ray treatment and was very sensitive to it. Twenty-four hours after a three minute exposure to a Coolidge tube, he collapsed, pulse became rapid and feeble, continuing so for several days, but he gradually gained strength and left the hospital for a period of rest at home. Later he reentered. Tissues in the neck were not healthy, and a few days after his return, the skin over the area of the former tumor in the neck broke down completely, leaving an ulcerated area about two and one half inches by one and one half inch immediately over the jugular vein. The inner portion of these edges showed no evidence of malignant tissue, having the appearance and behavior of an area of necrosis

occasioned by prolonged x ray exposure. Patient finally had three severe hemorrhages, gradually grew weaker, and died.

CASE X. Man, aged twenty-six years, had epithelioma of the tongue on the right side. When the patient came to the hospital for treatment, he was able to open his mouth only about a quarter of an inch, and had intense pain. Growth had been rapid, the cervical lymph nodes were involved, and there was a mass at the angle of the jaw, about the size of an orange. At the beginning of treatment a poultice was used, later an occasional x ray exposure was employed. Following several applications of the poultice, the patient was given a six minute exposure to the x ray from a Coolidge tube over the glands at the angle of the jaw; the glands became softened. A long crucial incision was made to evacuate a large amount of broken down cell detritus, some of which was removed by the curette. The wound was kept open and drained. A few days later, the exposed area was again treated with a Coolidge tube. Following this procedure there was great relief from pain, and for some months the patient lived in a fairly satisfactory condition. The operation wound never entirely healed, however, leaving a small area about the size of a five cent piece at the angle of the jaw, which never did granulate. At times the patient could open his mouth fairly well, and did not have much pain. The treatment was not pushed for several weeks, but finally a few injections of extract were made in and about the area that had formerly been the site of the enlarged glands, and following this procedure the area was exposed to the violet rays from a quartz lamp for a period of fifteen minutes. The previously incompletely healed area at the angle of the jaw, a few days later, broke down completely, and a large sinus opening into the pharynx behind the angle of the jaw resulted, in diameter large enough to admit one forefinger. This area was obviously the path through which the tumor had originally grown.

Finally the subclavian vein became thrombosed, and the patient died. Although the inevitable outcome appeared, it was remembered the patient was in an inoperable and incurable condition when treatment was begun; for several months under treatment he had been in a comparatively comfortable condition with very little progress in the growth of the tumor, in a fair state of nutrition, without loss of weight and suffering no pain.

In commenting upon these cases it should be remembered that they were all in a far advanced condition of malignant disease at the time treatment was begun, and there can be no question that the size of the tumor mass was reduced and that for some months life was maintained in a comparatively comfortable state. The patients comprising this group were treated prior to the later improvements in the use of the extract. All of them had exposure to the x ray from a Coolidge tube as a part of their treatment, but the effect upon the tumor was greater than that which has been observed in similar patients from the use of the x ray alone.¹ Now in somewhat sharp contrast to this group of cases, it is interesting to cite the histories of a few patients who have been treated in the Polyclinic Hospital. These cases are interesting because they have been treated entirely by hypodermic injection of the extract. The x ray has not been used in any case.

CASE XI. Man, aged fifty years, had recurrent colloid carcinoma of the rectum. Kraske operation two years ago. In July recurrence became troublesome, and at the time of his admission to the hospital there was extensive involvement of the tissues, in and about the rectum and including the base of the bladder. Patient had severe pain, great difficulty in defecating. It was impossible at the time of his admission to pass a rectal tube, and the bladder irritation was so severe as to cause almost constant tenesmus. Injections in the hospital were made directly into the growth. During his stay in the hospital of six weeks, sixteen injections were made; following the

¹It must be noted, however, that the dose of x ray given most of these patients was greater than that usually employed, and the results may be largely attributed to such treatment.

earlier ones, there was marked reaction accompanied by rise of temperature and an occasional chill. X ray examination revealed involvement of sacrum. Large broken down masses of tumor were discharged. Pain and irritation about the base of the bladder gradually diminished. The swelling and pain about the sacrum entirely disappeared, the tumor masses in the rectum were in part absorbed and in part broken down, and were discharged. At the end of six weeks the patient left the hospital, free from pain, with normal control of bladder. Patient was passing formed stools, the rectum admitted forefinger easily without pain, and tumor masses could not be felt. After leaving the hospital, the patient had a few injections in the arm, he continued to gain in weight and strength, and his general condition continued to improve.

CASE XII. Man, aged forty-six years; in 1905, was operated on for stone in kidney; stone not found. In 1911, again operated on and stone removed. In 1912, hemorrhage from kidney; nephrectomy attempted, but failed; in 1913, left kidney removed. Six weeks before admission to the hospital, patient noted peculiar growth appearing on the scar of the old operation wound. Growth increased in size, patient sought medical advice, was informed that he had an inoperable sarcoma, and was sent to New York for treatment. At the time of his admission to the hospital, patient had a mass in and about the scar of the former kidney operation, as large as a grapefruit. The mass had been growing rapidly within the last few weeks. A specimen was removed, and a section diagnosed as a sarcoma known as adrenal hypernephroma. Treatment in this case was by means of hypodermic injection of the extract into the tumor mass, except in two instances when the injection was made into the subcutaneous tissue of the arm. During the period of seven weeks' treatment, patient received twenty-two injections. At the time the specimen was removed, the patient lost considerable blood, and suffered from shock. The injections caused marked reaction with an occasional chill lasting from twenty to thirty minutes. Tumor softened, quantities of broken down material were discharged, tumor outline decreased in size, and at the time of his discharge from the hospital the indurated mass was about one sixth the size that it was upon his entrance. There was a small sinus extending under the skin for a distance of an inch and a half. Patient had increased in weight, gained in strength, was free from pain, and in markedly better general physical condition than was thought possible. After leaving the hospital, patient received an injection of extract in the arm every second or third day; he continued to gain in weight and strength, and the tumor mass was practically entirely gone.

In this case (XII) it seems difficult to doubt that the injections of the extract have been the prime cause in the disintegration of the tumor. We may discount the relief from pain and the increase in weight and strength, also the marked change from a beginning cachexia to one of returned health and vigor as proper criteria from which to judge of the effects of a therapeutic agent in the treatment of the malignant growth, but it does not seem possible to consider the disappearance of the tumor mass as subjective. It is obvious that the injection of the agent caused the disintegration of the tumor and, while it is quite possible that any indifferent necrotizing agent might well have caused the same destruction of tissue, the important point is that in this instance it was accomplished without injury to surrounding tissues or to the patient's health. It must be admitted that the patient's progress to date has been satisfactory. What the ultimate outcome will be can, however, only be conjectured. The writer has observed similar cases to show marked regression as the result of x ray treatment, with marked improvement in the general health of the patient, but with a subsequent development of remaining areas of tumor tissue which could not again be controlled by the same method. It is quite unwise to conclude on the basis of our pres-

ent information that his present good condition must necessarily continue. It is quite possible that this growth has other foci which have not yielded and which may subsequently give rise to further trouble.

CASE XV. Woman, aged fifty-one years, had a recurrent inoperable carcinoma of the breast. Recurrence involved the fifth and sixth rib, at the lower point of the old scar. Mass about three inches in diameter, very hard, the surface red. Some exudate appeared at the apex of the growth. Patient had intense pain along the left arm and shoulder, including the left side of the neck. Left arm markedly edematous and painful to touch. Edema extended to the region above the clavicle. Patient had had x ray treatment for a short time prior to admission to hospital without effect. Treatment was entirely by injection into the tumor and into the arm on the right side. At the time of her admission and previously, patient had temperature of 100° to 101° F., which finally became normal. During the period of twenty-six days at the hospital, patient received eighteen injections, two being in the right arm. After her discharge, patient continued to receive the injections at weekly intervals into the right arm. When the patient left the hospital the induration had entirely disappeared, edema in the arm and above the clavicle had been absorbed, and she had no pain. The central portion of the tumor mass was marked by a scab, about a quarter of an inch in diameter, representing a point of an old sinus through which most of the tumor mass had been discharged. After she left the hospital, this area entirely healed, the patient returned to work and was subsequently entirely well.

In this case (XV) again we may consider that the relief from pain and the improvement in the general condition is a matter of small consequence in judging the effect of treatment. One cannot, however, so easily escape the conclusion that the disappearance of the recurrent inoperable cancer was due to the injection. The comments on the previous case apply here also.

CASE XVI. Man, aged thirty-five years, had a recurrent carcinoma of the left breast; he had already undergone two operations; there were extensive areas of scar tissues over the left breast after these operations. There were three recurrent nodules about the area of the operation, and a gland approximately the size of an acorn in the left axilla. Patient in this instance remained in the hospital for a period of ten days, during which time four injections of the extract into the recurrent nodules and axillary gland were given. Following the injections, the nodules and axillary gland softened and were absorbed. At the time the patient left the hospital he was free of recurrence as far as could be determined, and there was no further recurrence since a period of only a few weeks. In this patient the recurrences were small, and except for the fact that the areas were already a mass of scar tissue, the recurrent nodules might have been removed by operation. Such a course did not seem advisable, however, and in fact was refused by the surgeon. No additional comment seems necessary.

CASE XVII. Man, aged fifty-two years; diagnosis: Carcinoma of the bladder, which had been made previously. When he entered the hospital, a suprapubic opening was made into the bladder, a large carcinoma was found at the base of the bladder, involving prostate and surrounding structures. Specimen was removed for section, and examination showed a considerable amount of inflammatory tissue containing nests of carcinoma cells. Patient before entering suffered a great deal of pain, with severe tenesmus, passed considerable quantity of blood in the urine, and gave evidences of a severe nephritis. He had been drinking heavily. Treatment was entirely by injections into the tumor directly through a suprapubic opening. Patient was treated during a period of twenty-one days. He showed marked reactions to the injections. The tumor softened, and decreased in size. Finally he had complete suppression of urine for twenty-four hours. While the urine secretion was reestablished, the urine examination showed that the kidneys were severely damaged. Four days later, the patient died.

Examination made through suprapubic opening a few days prior to death revealed no tumor mass in Case XVII that could be palpated by this method. The acute suppression of urine may probably be accounted for by the reaction accompanying the treatment and the manipulation required to give the injections. Comparatively small disturbances in the nature of manipulations of the bladder, ureters, and urethra are occasionally a cause of acute suppression of the urine. It does not seem possible to account for such a reaction by ascribing it to the toxicity of the injected extract. No similar reaction has been observed in other patients.

CASE XVIII. Man, aged forty-four years. This patient was observed in the Polyclinic Hospital, but received his treatments outside. Epithelioma of the floor of the mouth. There was found a fungating infected, bleeding epithelioma having a foul odor, and at each angle of the jaw were large lymph nodes, approximately the size of a small egg. Patient suffered great pain, was unable to take anything but fluid food, and was in a very weak physical condition; his appearance was distinctly toxic and cachectic. His treatment was by injections of the extract, for the most part into the subcutaneous tissue of the arm, although in the beginning of the treatment each lymph node received three injections. At the same time the floor of the mouth had been cleaned with a strong solution of the extract applied with a small swab. Poultices were also applied directly over the large lymph nodes.

This patient (Case XVIII) has been under treatment for a period of six and one half weeks and continues to receive injections of the extract into the arm at two day intervals. The results of the treatment to date are as follows: Patient is comparatively free from pain; floor of mouth is clean; he has gained in weight from 141 pounds to 154 pounds; he is much stronger and able to eat solid food; he has a much better color, and no longer presents the toxic, cachectic appearance he did at the beginning of this treatment. Lymph nodes at the angle of the jaw have been almost entirely absorbed. While the patient is much better, still there is some induration in the floor of the mouth, and some involvement of the tissues in this region still remains. This patient is cited because the major part of his improvement has come at the period when the injections of the extract have been made into the subcutaneous tissues of the arm. One day, by mistake, he received two full doses of the extract at an interval of three hours. The consequent reaction was apparently severe, but when it passed, the patient felt in good condition, and the retrogressive changes proceeded far more rapidly from that date, indicating that larger doses, if well borne, expedite the treatment. There is no question that the patient's condition at the present time is decidedly better than when injections were started, and there seems to be no reasonable ground for supposing that these changes are such as might be expected to occur in the natural progress of this disease.

By no means all the patients who have been under treatment by this method are cited at this time. Those whose histories are given are fairly representative of the results which have been obtained in the past and continue at the present. The writer, in spite of the somewhat complex and unusual character of the remedy employed, concludes that the evidence warrants further use of the remedy. In judging of the merit of a treatment for inoperable cancer, it is probably wise to discount such matters as

the relief from pain and the improvement of the general physical condition, because, while these matters are of much concern to the patient, they are to a considerable degree subjective in character and may to some extent be expected to follow the employment of any new method which stimulates the patient with faith and hope. The writer has been interested in the treatment of cancer patients for a number of years, but he has not heretofore seen such consistent improvement, of the character mentioned, follow in the type of patients cited by the use of other known remedies. If an actual diminution and regression in the bulk of malignant tissue is taken as a criterion by which to judge of the effect of this remedy, it is the writer's opinion that the evidence presented can lead to but one conclusion.

Brief directions and precautions for the safeguarding and use of this treatment may be of interest. A poultice is prepared for application by the usual methods. The powder is mixed with a small quantity of boiling water sufficient to make a thick paste; this is spread upon gauze, covered by one layer of gauze and applied to the affected part in the same way as one would apply a mustard plaster. The skin must be first covered with a layer of petrolatum, otherwise the irritation will be too severe to endure. After a few applications, there is much less irritation in the skin, which becomes somewhat thickened and apparently less sensitive. It is the writer's opinion that the poultice has a limited field of usefulness, but is most effective when counterirritation is indicated. Superficial growths in the skin and ulcerated areas of tumors more deeply seated, may be beneficially influenced by its application.

The injection of the extract made from the powder, given by hypodermic injection, either directly into the tumor mass itself or into the subcutaneous tissues of the arm, has a much wider application and a decidedly better effect. The method by which these extracts are made is not given in this statement, because it is still the subject of experiment. In the beginning, a saline extract was alone used; at the present time other methods are followed, and these are being modified in order to secure a stable extract of maximum potency. The dose of this extract varies somewhat with the patient. In the beginning, with a weak patient, from five to seven minims are given at the first dose, and depending upon the condition of the patient injections are made every day, every other day, or every third day. The amount given at each injection and the size and frequency of the injections, depend almost entirely upon the condition of the patient and the reactions produced by previous injections. It is the writer's wish not to discuss in the present statement any theoretical considerations regarding the mode of action of this remedy; he prefers to leave such discussion to a later date, when more space and added experience may make possible a clearer understanding of the matter.

If we survey the evidence presented in these cases, it appears that certain types of superficial epithelioma may be caused to regress and the affected area allowed to heal. These superficial epitheliomas of the rodent ulcer type, which have not progressed to a large degree, have been treated

successfully in the past by a variety of methods, such as radium, x ray, and various forms of escharotic paste. With regard to the cases treated in the General Memorial Hospital, it should be stated that they have been for the most part in a far advanced condition of the disease with very large, actively growing cancers. It is conceivable that an agent of the character described might cause a destruction of the somewhat necrotic central portions of large cancers without, to the same degree, inhibiting the growing edge. Such a process would remove to some extent the possibilities of absorbing necrotic toxic material from the growth itself and eliminate at the same time a considerable portion of the infection. This may account for a considerable part of the general improvement noted in those patients who had ulcerated, badly infected growths.

17 EAST THIRTY-EIGHTH STREET.

THE RELATION OF ARTERIOSCLEROSIS TO OPHTHALMOLOGY, NEUROLOGY, AND SURGERY.*

The Viewpoint of the Internist.

BY LOUIS FAUGÈRES BISHOP, A. M., M. D.,
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The work of a man occupied with the problem of arteriosclerosis touches that of other specialists at various periods in the development of the disease; early in the course of the disease, on account of functional disorders that are the result of the same process that is producing the sclerosis; later, on account of the damage of particular organs from the lesions which have resulted from the sclerotic tendency.

Many discussions of arteriosclerosis come to no conclusion and serve no good purpose because of a widespread confusion of terms. For clearness, there are two things that must be separated: Arteriosclerosis, the disease, is a process which, when neglected, results uniformly in hardening of the tissues, and receives its name from the arteries which are frequently the organs most conspicuously involved. Note particularly the wording of the previous sentence—"a process that results in hardening of the tissues"—because the other thing from which the disease must be distinguished is the hardening itself. The sclerosis of arteriosclerosis is the lesion of the disease, the result of the disease, and not the disease itself.

In ophthalmology, during the acute or formative stage of arteriosclerosis, the eye suffers from a condition known as albuminuric retinitis; also, from many functional disorders incident to the autointoxication that results from the disturbed digestion and metabolism. In the later stages of the disease occur the retinal hemorrhages with which we are so familiar. At this time the very high blood pressures are observed.

In neurology, in the early or formative stage of arteriosclerosis, we have the functional disorders similar to those affecting the eye, but much more varied on account of the intricate nature of the or-

gans involved. In the later stages, we have disorders resulting from obstructed or ruptured blood-vessels and the incidental damage, hemiplegia, being, of course, the most familiar instance.

Surgery has a vast field in the prevention of arteriosclerosis by dealing with bacterial processes as found in pyorrhea. This is much discussed in regard to the teeth, but pyorrhœa alveolaris is not the only form. Chronic gallbladder disease, chronic appendicitis, intestinal stasis, and suppurative conditions of the genitourinary tract are equally important.

The relation to surgery of the advanced stage of the disease has to do with the consideration of the advisability of operations, the preparation of the arteriosclerotic for operation, and the study of blood pressure during operation and during convalescence.

The viewpoint of the hygienist is that of a process that is going on and is amenable to treatment, so that lesions already produced may be compensated for and further damage prevented.

The viewpoint of the ophthalmologist, neurologist, and surgeon, is of disturbed or damaged bloodvessels that have intruded themselves upon the organs pertaining to the special work of each, resulting in interruption or destruction of function. This represents a failure of the general practitioner to prevent or treat the disease.

Personally, I have arrived at a theory that might be called *the cellular theory of arteriosclerosis*. It depends upon a belief in a disturbance of metabolism that results in the irritation and destruction of cells. This destruction is most often the result of an anaphylactic reaction of the cells against certain proteins of dietetic or bacterial origin, to which the cells have become sensitized. The treatment of the disease is hygienic and involves a strict diet depending upon the food relations of each individual, well regulated exercise, and appropriate internal medication.

There is an original observation that has been in my mind for a long while, but which has never been formally submitted to the judgment of a medical society. It concerns the gross appearance of the eye in arteriosclerosis. I remember that several of the great clinicians who were my teachers spoke of the "shininess of the eye" in what was then called "chronic Bright's disease." The supposition was that this was caused by an edema of the conjunctiva. It was present in many cases when there was no suspicion of edema elsewhere. The eye is different from other organs on account of the transparency, which allows its minute structures to be observed during life. The study of the bloodvessels in the eye for the early detection of arterial changes is often spoken of. The belief has grown on me that the change in the appearance of the eye in arteriosclerosis is a visible manifestation of the cellular irritation that I believe to be the cause of arteriosclerosis.

At all events, close observation of people with arteriosclerosis in all stages shows that a fair judgment as to the activity of arteriosclerosis, the disease (that is, the process that is tending to cause hardening of the tissues) is indicated by the degree of development of this observable condition in the eye; and that in many instances in the early stages of the disease, this appearance is no longer to be seen

*Read at the meeting of the Medical Association of the Greater City of New York, March 15, 1915.

so long as the person affected follows a strict regimen, but so soon as there is a recrudescence of the disease, the irritation returns.

The sensitization of the conjunctiva to protein irritation of external origin is well recognized under certain circumstances and is made use of by serologists. There is no reason why the cells of the conjunctiva should not be sensitive to unfriendly proteins circulating in the blood. I was told recently of a child who was so sensitive to eggs that if an egg was opened in the same room, the child's eyes immediately showed irritation. I cannot vouch for the truth of this observation, but it is not incredible in the light of many food and drug idiosyncracies.

This suggestion of the true nature of the eye appearance in arteriosclerosis is the new idea that I bring to this subject. The general theory of the disease I have frequently elaborated before. In the papers that are to follow, the viewpoint of other specialists will be brought out. The ideas that I wish to bring forward are:

1. The manifestations of arteriosclerosis in the field of ophthalmology, neurology, and surgery represent the various stages of a degeneration of arteries which the art of internal medicine has failed to control. The gross lesions met with in ophthalmology, neurology, and surgery, represent end results of the disease which has been given the name, "arteriosclerosis." The disease, in fact, is named for the gross lesions with which the oculist, neurologist, and the surgeon often have to deal.

2. The disease, arteriosclerosis, which leads to these lesions, consists of a disturbance of metabolism, leading to a damage of the individual cells by particular proteins with which the cells are unable to deal successfully. This disturbance of metabolism consists of a sensitiveness of the cells that has resulted from some cause analogous to parenteral ingestion of a protein, and happens usually at the time of some severe illness, acute poisoning, or a great nervous strain.

3. The essential treatment consists of the discovery and removal of the offending protein. There is a very active discussion among serologists as to the possibility of alimentary sensitization, but my clinical experience forces me conclusively to take the side of those who believe that this form of sensitization is common.

4. Arteriosclerosis, when begun, proceeds for perhaps five years without symptoms and a few years more with only obscure manifestations; often enough it is recognized only when the development of retinal hemorrhage brings forward the ophthalmologist; the sudden development of hemiplegia, the neurologist; the development of gangrene, the surgeon; and the nasal, uterine, or prostatic hemorrhage, the rhinologist, the gynecologist, or the urologist.

5. The time to treat arteriosclerosis is at its beginning, but much more can be done for even terminal cases than is generally supposed. Free phlebotomy, strict diet, enforced exercise, the avoidance of improper drugs, and the use of proper drugs, has often checked the process when no one would have ventured to promise such a consummation.

54 WEST FIFTY-FIFTH STREET.

ARTERIOSCLEROSIS AS SEEN BY THE OPHTHALMOLOGIST.*

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There are not a few diseases in which the aid of the ophthalmologist is sought in making a diagnosis, such as suspected brain tumor, with its choked disc, or diabetes, or nephritis, with the retinal changes characteristic of each. Indeed, not infrequently it is "the man behind the ophthalmoscope" who first discovers the evidence of the existence of these latter diseases. Quite as important in my opinion are the changes characteristic of arteriosclerosis, often also first seen by the ophthalmologist, and I desire attention to a brief consideration of some of the aspects of this disease, as it comes under the observation of the medical ophthalmoscopist.

Arteriosclerosis. At the age of forty-five or fifty years, patients begin to have difficulty in reading (presbyopia) or at a later age, they find their glasses need changing, so they consult the oculist. If the latter is careful and appreciates the opportunity now

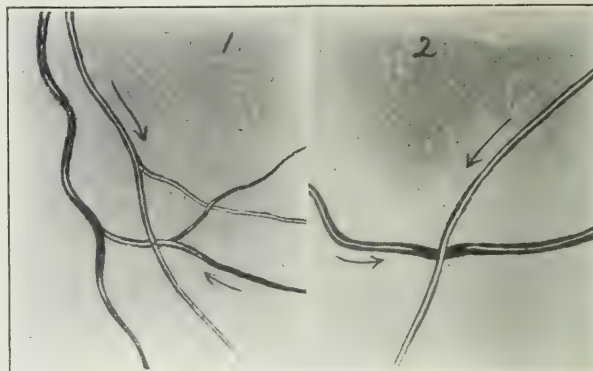


Fig. 1.

Fig. 2.

FIG. 1.—Normal crossing of vein by artery, and artery by vein.

FIG. 2.—Earliest evidence of beginning arteriosclerosis. Loss of light streak on vein, on either side of artery, and the slight displacement of the vein by arterial flow.

presented for investigating the condition of his patient's vascular apparatus (*vital rubber*, as Osler calls it), he will often discover the danger signals pointing to beginning arteriosclerosis, and be in a position where he can be of the greatest possible service to his patients. Nowhere in the body, save in the retina, is it possible to see the bloodvessels, and study their peculiarities and changes. In order that the ophthalmoscopic signs of arteriosclerosis may be appreciated, I present a sketch from the normal fundus (Fig. 1), and call attention to certain of its characteristic features.¹

Please note, first, that the vessels regularly and uniformly diminish in size from the optic nerve to the periphery, second, that the vessel walls are not visible, but merely the red blood column within, and that the arteries are of a lighter color than the veins,

*Read before the New York Clinical Society and, by invitation, before the Medical Association of the Greater City of New York, March 15, 1915, in a symposium on arteriosclerosis.

¹I wish here to acknowledge my great indebtedness to my former assistant, Dr. George Young, for the skillful and artistic way in which he has drawn these beautiful sketches, all taken from cases seen by myself. The fine coloring is lost in reproduction.

and have a diameter about two thirds to three fourths that of the latter. I especially draw attention to the point where a vein is crossed by an artery. The diameter of each vessel is unchanged at this point, the light streak is still visible on the sur-

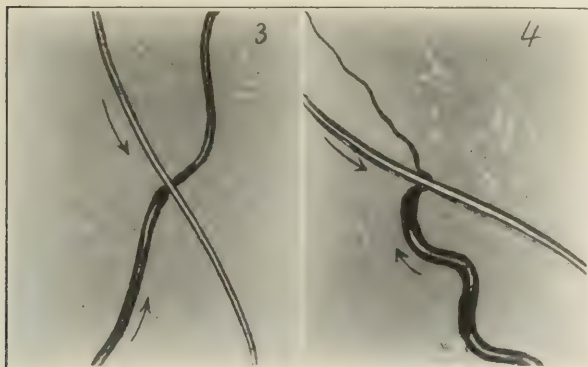


Fig. 3.

Fig. 4.

FIG. 3.—A stage a little further advanced than Fig. 2; showing all the peculiarities of the preceding, and in addition a slight dimple of the vein.

FIG. 4.—Shows a later stage; not a dimpling, but a marked compression of the vein, with its calibre much diminished beyond artery. Latter shows the silver wire appearance.

face of the vein, and it is evident that the arterial wall is not opaque, for the underlying vein can be still dimly seen through it. Finally, the crossing is perfectly straight, like the two arms of an X. It is at these points of crossing of a vein by an artery that we discover the first retinal abnormalities suggestive of arteriosclerosis. The effect of the pressure in the diseased artery on the underlying vein first shows itself by the loss on the part of the vein of the central light streak on either side of the artery, and by a slight displacement of the vein in the direction of the arterial flow (Fig. 2). The walls of the artery are evidently thickened and less translucent than normal, for they wholly conceal the underlying vein. As the arteriosclerotic process progresses, there is noticed a slight dimpling of the vein, or diminution of its calibre by the overlying artery (Fig. 3). Sometimes the vein beyond the point of crossing is reduced in calibre to one quarter of what it was before it met the artery, or even less (Fig. 4). Still later, the vein at these points of crossing shows

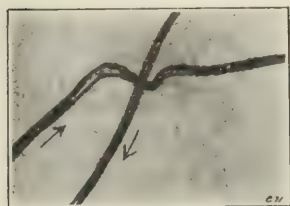


FIG. 5.—The vein shows a marked constriction, winds around the artery; the marked twist is very conspicuous, as the rest of the vein is not tortuous.

a much greater constriction, winds around the artery, and often the marked twist is very conspicuous as the rest of the vein may not be at all tortuous (Fig. 5). That the vein is here compressed, and the current hindered is evident from the venous dilatation back of the constricted part, as well as

by the frequent hemorrhages seen exclusively in the area of an obstructed vein. These retinal hemorrhages are a frequently observable symptom in advanced arteriosclerosis. Where a vein passes over a rigid artery, the former is occasionally flattened out, somewhat like a strap (Fig. 6).

Changes in the calibre of the arteries. In our

sketch of the normal fundus we saw that the retinal arteries diminished in size regularly from the disc to the periphery, and were about two thirds to three quarters the diameter of the veins. In arteriosclerosis, however, we find that the retinal arteries are often abnormally narrow, and that the calibre of those near the disc often varies, the red column of the vessel at one point getting very narrow, sometimes as fine as a hair, to again regain its former diameter a little further from the disc. In this case we do not see the wall of the vessel at all, merely the narrower blood column, owing to the proliferation of the intima, and a consequent narrowing of the lumen (Fig. 7). Or less often, there may be an increase in the breadth of the artery for a short distance, after which the vessel resumes its original diameter. These two symptoms, compression of the veins where crossed by an artery, and the changes in the calibre of the arteries, I consider the most positive ophthalmoscopic symptoms of arteriosclerosis, for they form a picture about which there can be no difference of opinion. A marked tortuosity ("kinkiness") of the smaller arterial and venous twigs, especially those leading to the macula, is often

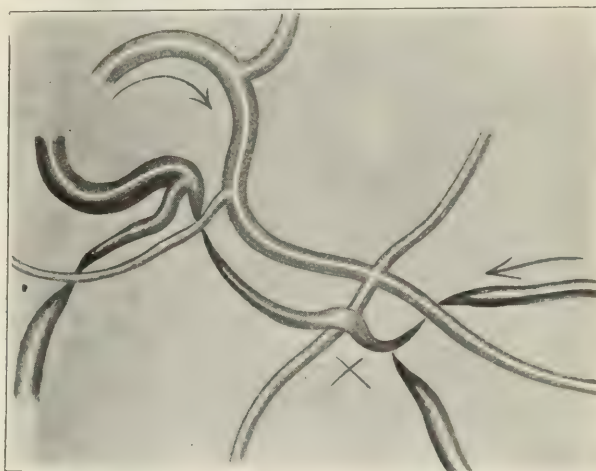


FIG. 6.—Vein stretched over hard artery, at x, like a strap; also shows marked compression of veins where crossed by arteries.

spoken of as a symptom, but is of importance only when it is associated with other evidences of disease.

Silver wire arteries. This is a term introduced by Marcus Gunn to describe the appearances of the arterial twigs in arteriosclerosis. Owing to the observable increase in the reflex from the arteries, with at the same time a narrowing of their calibre, the vessels along a large part of their course may be more or less sharply outlined in white, looking like silver wires (Fig. 4). Normally an artery under a vein is invisible on account of the dark venous blood, but when these silver wire arteries are present, the underlying artery can often be seen through the vein on account of increase of the light reflex from the artery (partly also because the venous column is thinned out like a strap). With increase of the light reflex goes a loss of the translucency of the walls of the arteries, on account of which an underlying vein is concealed which in health would be visible.

Perivasculitis. Finally we may have white lines along parts of some vessels so that the vessel wall

here becomes visible (Fig. 8), a condition known as perivasculitis. This perivasculitis of several arteries on the disc was a conspicuous symptom in a patient (man, aged sixty-two years), seen within a year, whose blood pressure was found to be 250, and who



FIG. 7.—Shows beautifully the irregular calibre of the arteries on and near the disc. (Patient became suddenly blind in the other eye from endarteritis obliterans.)

suffered from a stroke of apoplexy shortly after I saw him.

Pathology. As is well understood, the retinal vessels are suspended in a completely transparent tissue, and under normal conditions the vessel wall is quite invisible. The two conspicuous signs of arteriosclerosis (aside from hemorrhages and degenerative spots) are, 1, narrowing of the blood current without very evident changes in the wall, or perhaps with silver wire arteries and banking of the veins, and, 2, white lines along the vessels. The latter are due to a thickening of the connective tissue coat (a

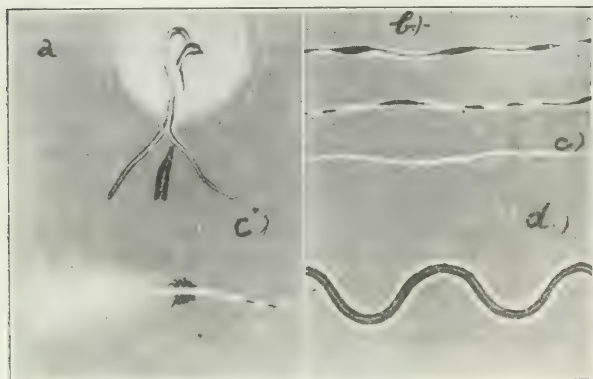


FIG. 8.—Perivasculitis; a, on disc (artery); b, various arterial changes; c and c', obliterated arterial branch; d, on a vein.

fibrosis) which encroaches more or less concentrically upon the lumen of the vessel, while the former, indicated by a narrowing of the blood column, and not by any visible change in the walls, is due to a proliferation of the endothelium, which is almost al-

ways eccentric, displacing the lumen to one side. The latter (disease of the intima) is most probably a response to a circulating toxin which would naturally chiefly affect the internal coat; the former (thickening of the connective tissue wall) is probably a strengthening of the wall to compensate for raised blood pressure. The venous narrowing at an arterial crossing is the result of a phlebosclerosis limited to the point caused by the mechanical interference with the blood current at the point of crossing of an artery, perhaps by the walls of the latter. The abnormally high tension of the arteries probably assists in the compression of the vein under it. The obstruction to the circulation dams back the blood, resulting in hemorrhages. Sometimes we see vessels, the lumen of which has been entirely obliterated, and we have left merely a white line of connective tissue. The opacity of the coats of the vessels, and the increased brightness of the central light streak is due to the higher reflecting power, after the vessel wall has undergone a hyaline fibroid change. Increasing difficulty in arterial circulation will diminish the rapidity of the blood stream in the capillaries and veins, with resulting retinal edema, hemorrhages, and white patches. In the most advanced cases the lines of the folds which radiate from the fovea centralis due to the edema are sometimes marked out by the white spots of degenerated effusion, with the ophthalmoscopic appearances characteristic of so called albuminuric retinitis. The connection between the latter and the accompanying nephritis is to be sought partly in vascular changes, or increased blood pressure. But modern investigations have shown that injury to the retina is also done by toxic matter formed by the decomposition of kidney substance, and possessing a particular affinity for the tissues of the retina.

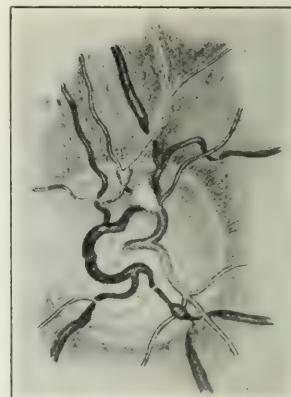


FIG. 9.—Shows the silver wire arteries and compressed veins on and near the disc.

That the latter is diseased is due to the fact that it has one or two kinds of albumin which it possesses in common with the kidneys, and which, therefore, are attacked by the nephrotoxin.

Location. The central vessels, i. e., those upon or near the optic nerve are the most apt to be affected (Fig. 9). Hertel's anatomical investigations have demonstrated a more marked involvement of the vessels in these central portions. The bifurcation of the vessels appears to influence markedly the formation of the narrowing in the calibre, as this occurs most frequently in the vicinity of a branch. The favorite spot for the proliferation of the intima is where the retinal vessels branch off from the central artery of the nerve. The concentric hypertrophy of the connective tissue wall of the vessel (perivasculitis) is best seen on the disc, where the background is such as to better bring it out.

The *distribution* of vascular disease in the retinal vessels is extremely irregular. Certain sets of ves-

sels may be quite normal in appearance, while another small retinal artery may present at various points of its course every possible form of arteriosclerosis. In serial sections from small vessels we may find at one point the artery almost obliterated by endothelial proliferations, but practically normal one or two mm. away. Many patients show extensive intraocular vascular disease without the least palpable rigidity of their radial or temporal arteries, and *vice versa*. So that it is evident that angiosclerotic processes are almost always exceedingly irregular in their distribution.

Some observations have been made also, showing that pretty extensive disease may exist in the retinal vessels without ophthalmoscopic evidences. Yet as Mr. Coats says, the ophthalmoscope remains the best indicator of the state of the vessels generally, which we possess, and this method of examination is infinitely more delicate than palpation of the radial or temporal arteries through the skin. The detection of the lesions can be made only by the direct image; they must be sought for very carefully, and sometimes by weak illumination.

Do we see many of these cases? That depends upon how carefully we look for them, for, as I have already stated, they must be hunted for, and are very often overlooked. In my own practice, I seldom see less than eight or ten pronounced cases each month, and often more.

CASE I. Mr. X., aged fifty years, active business man, consulted me in April, 1909, for glasses, which I prescribed for him. I had seen him at irregular intervals for four years previously. On this occasion I found in the fundus of each eye an exquisite picture of arteriosclerosis. The veins were markedly compressed, where crossed by arteries, were very tortuous; and one or two arteries on the disc showed a varying calibre. The examination of the urine, kindly furnished me by the patient's physician, Dr. S., showed a trace of albumin, a few hyaline casts, and a specific gravity of 1015. I saw him several times after this, always noting the same fundus peculiarities. In November, 1911, he died suddenly of apoplexy, aged fifty-two years, two and a half years after I had first discovered arteriosclerosis of the retinal vessels.

CASE II. Mrs. B., a patient at that time of Doctor Jane-way, aged sixty-six years, consulted me in May, 1909, for glasses, which were prescribed for her. In each fundus was an extreme picture of arteriosclerosis, varying calibre of the arteries on the disc, with marked pressure of the veins where crossed by an artery. In January, 1913, she had left ophthalmoplegia with ptosis; and divergent strabismus. She recovered almost entirely from the ptosis, but the divergence continued. I saw her last on April 26, 1913, and noted that the arteriosclerotic changes were more marked. She died suddenly, February 22, 1914, of angina pectoris, five years after I had first noted the ocular condition. She had had one or two anginoid attacks previously, but died in the first severe genuine attack of angina. She had also chronic interstitial nephritis.

CASE III. Mrs. S., aged forty-nine years, was seen by myself September 15, 1908 (first two years previously), when she stated that her vision had been poor for a month past. She had a marked picture of arteriosclerosis in each eye, veins markedly compressed by arteries, and irregular calibre of some arteries on the disc. She showed also the picture of albuminuric retinitis, hemorrhages, with some white exudates above the disc in the right eye, and hemorrhages in the left. Urine, specific gravity 1025, albumin 0.052 per cent., few granular casts. (This report was obtained through the courtesy of her physician at that time, Doctor Barrows.) I saw this patient seven months later (April, 1909), when, in addition to what had previously been observed, there was the stellate arranged spots of white exudate at the right macula, such as we customarily see in so called albuminuric retinitis. I saw her again in

December, 1909, and again in December, 1910. She looked bad, and from her retinal picture, I was always surprised to find her still alive. In May, 1911, she had a cerebral hemorrhage, followed by right hemiplegia, at which time her blood pressure was 280. She then lived in the suburbs of Boston, and her physician wrote that April 20, 1912, her blood pressure was 230, that she was totally blind, had right hemiplegia and weak mentality; subsequently she died.

In connection with this last case of hemiplegia, I would say that three or four years ago I examined forty-six inmates of the incurable ward on Blackwells Island, most of them suffering from hemiplegia or paraplegia, and I found ocular evidences of arteriosclerosis in over three fourths.

May I refer briefly to these three cases, which are types of a large class to which Mr. Marcus Gunn first called our attention? In each one there was undoubted evidence of renal disease, and in the last there were furthermore the retinal changes which we ordinarily associate with renal disease, but all showed also a marked picture of arteriosclerosis. Two subsequently had cerebral hemorrhage (one fatal) and the other died of arteriosclerosis (angina pectoris). So that while the renal disease seemed to be the important feature, time showed that the vascular changes (in two of them of the cerebral vessels) were to play the principal role in their subsequent course. Mr. Gunn touches upon this point as follows: "We have to bear in mind, however, that granular kidney associated with arterial sclerosis is very often not accompanied by albuminuria. I certainly have not found albuminuria nearly so common in these patients as I at first thought was the case, and even when evidence of renal disease is present, the kidney condition seldom proves of major importance. The cases that I have succeeded in following up indicate, as I have said, the most intimate connection between these ophthalmoscopic changes, and later evidence of cerebral vascular disease." With these views of Mr. Gunn I am in thorough accord.

I believe the following case, which puzzled me for some time, is one of the same kind; that is, even though evidence of renal disease is present, that not the kidney condition but that of the cerebral vessels is to play the important role.

CASE IV. Mr. G., aged fifty-six years, consulted me in February, 1909, for glasses. I found the veins compressed where crossed by arteries (i. e., arteriosclerosis), and glistening white spots arranged in a stellate manner about the macula of each eye, quite suggestive of so called albuminuric retinitis. I sent him to his physician, Dr. D., who found a light cloud of albumin, moderate number of hyaline, granular, and epithelial casts, and arterial tension of 180. The brother of this patient was vice-president of one of our large life insurance companies, and being skeptical as to the diagnosis, he had him examined by the company's physician, who declined to give him a policy, stating that he had Bright's disease in a critical form, with large amount of albumin, and high pulse tension (I subsequently learned that eighteen years before, in 1891, he had been declined by a life insurance company for a similar reason). Twenty months later, October 28, 1910, this patient consulted me again, apparently in the best of health. I found the same macula picture in the left eye as before, and vision reduced to movements of the hand at twenty feet. The evidence of arteriosclerosis, if anything, was more marked. In January, 1915, he was still in the best of health and spirits, and for a man of sixty-two years looked remarkably well preserved. He certainly had nephritis, but from my observation of similar cases, it seemed probable that the condition of his cerebral vessels, and

his high arterial tension would lead to the final catastrophe in his case.

Here are two of many cases in which the condition was discovered early, and the patient was properly advised.

CASE V. Mr. S., aged fifty-four years, had been seen by myself several times during the last eight years for change in his glasses. Examining him on March 14, 1909, I found a small hemorrhage in the right eye, near the disc, with irregular calibre of the arteries. He was a man of large affairs, was under great pressure, and his condition was such that his physician was notified of the retinal condition. As a result of the advice from this gentleman, he gradually withdrew from active business. A year of rest (and nitroglycerin?) brought his blood pressure down so that it was always below 140. When seen last, in May, 1914, he still showed a marked picture of arteriosclerosis, but enjoyed loafing, and living carefully, and taking good care of himself. Had his mode of living not been changed three years ago I think in all probability his end would have come earlier, whereas he gave promise of living some years. He died December, 1914, six years after my discovery of retinal arteriosclerosis.

CASE VI. Mr. W., aged forty-five years, consulted me in November, 1907, in reference to his glasses. I found irregular calibre of the arteries on the disc with perivasculitis. He presented the typical appearance of a New York club man, and bon vivant; plethoric and dusky cheeked. I communicated with his family physician, Dr. L., who gave him a careful examination, and insisted on his absolutely changing his way of living. Two years after this, I saw the patient again, and again four months ago, and I have seldom seen such a change in a person. He had given up alcohol completely, had led an extremely temperate life, and certainly looked like a man who might live for many years.

It is in these early cases where the oculist may be of such great service to his patients. The process is just beginning, and ophthalmoscopically there is merely evidence of slight pressure at the venous crossings, with an artery on the disc, showing possibly an occasional irregularity in calibre. Now is the time when a careful overhauling and wise directions by the patient's physician, may materially check the progress of the condition, or possibly avert a catastrophe.

I have spoken often of the blood pressure of these patients, but data have generally been furnished me by the family physician. While I appreciate thoroughly the importance of the sphygmomanometer, and make use of it continually in my clinical work, I am not at all sure that it is wise for the ophthalmologist to use it promiscuously on his patients. The latter, indeed, are many times told much about matters legitimately ophthalmological which they would be better off not to know. For our patients nowadays are so extremely apprehensive that if you even ask them who their family physician is, they will turn pale.

When, therefore, I see a picture of arteriosclerosis in the fundus of the eye I *know* that the patient's blood pressure is higher than normal; otherwise he could not present such an ophthalmoscopic picture. That being the case, I am convinced that it is far better (for the patient) to leave all sphygmomanometric investigations to his family physician or to the internist to whom he should be referred. It may not be difficult for a novice (and certainly an ophthalmologist is merely a novice in this sort of work) to put on a sphygmomanometer and read off the blood pressure, and the exhibition may impress some patients. But we all know that

it takes all the skill of an expert internist accurately to measure the systolic, diastolic, and pulse pressures. How much more does it require such skill properly to interpret and appreciate the exact significance of the information the sphygmomanometer has given him, and properly and wisely to advise the patient! Indeed, the ablest special workers in this field are not all agreed even among themselves in regard to many problems in blood pressure.

I invariably refer these patients at once to their family physician or to an expert internist. The task of investigating the blood pressure in such cases is legitimately his, not that of the ophthalmologist. I think all ophthalmologists should do the same.

Etiology. As to the etiology of arteriosclerosis, most of my readers are probably better prepared to speak than myself. Syphilis, of course, often contributes largely to the condition, and I have not infrequently found it to a very marked degree in patients of whose specific disease I have subsequently learned. The high pressure under which so many people today are living, and especially the habit of *worrying*, must also be etiological factors more or less important. Chronic alcoholism contributes to the condition, probably also gout. Some people inherit a predisposition to it.

Age. As Mr. Coats has said, arteriosclerosis is in part a senile change which we should expect to find in the vessels of an old person—although we often see perfectly healthy looking vessels in patients of quite advanced years—in part a definite response to a pathological stimulus. Given the stimulus, however, it may appear far in advance of the usual age. I had occasion to appreciate this fact quite recently in the case of a patient where I had never had any occasion to suspect specific disease, and at an age when one would not expect to discover such a picture. I found marked retinal arteriosclerosis, irregular calibre of several arteries near the disc, the lumen of one vessel entirely obliterated and reduced to a fine white cord, and in the periphery numerous fine hemorrhages. There was no evidence of renal disease. For the first time I learned from her family physician that the patient had acquired specific disease many years before, and no doubt the early vascular degeneration was due to this. If I find marked retinal evidences of arteriosclerosis in a relatively young person, and there is no indication of renal disease, I am inclined to suspect specific disease. A similar early vascular degeneration we see in juvenile nephritis.

It is generally stated that arteriosclerosis occurs much more frequently in males than in females, and I have no doubt that such is the case. In the last seventy-eight cases that I have seen in my office, there have been forty-four males and thirty-four females, probably a lower percentage of males and a higher percentage of females than really is the case.

Treatment. As to treatment I will say little, for my readers generally are more concerned with this. I hope I may hear something from some of them qualified by experience to speak upon the treatment of these cases, the best method of controlling or reducing blood pressure, etc. Is the best remedy iodide of potassium, or nitroglycerin, radium water, or the simple life? I suspect that the latter is not

the least important therapeutic indication. As to the retinal picture, I cannot say that I have ever seen much change in this, even in individuals whose general condition has been surprisingly improved by skillful treatment and wisely directed mode of living.

In conclusion, it may be said that general arteriosclerosis affects the internal carotid very frequently, and is very apt to involve its principal branches, and among these the ophthalmic and cerebral arteries. If these degenerative processes can be demonstrated in the retina, it is very probable that the same disease is present in the cerebral arteries. These middle aged patients should not be examined for glasses, therefore, in a perfunctory manner, for it is with them that the responsibility of the oculist becomes very great. As Mr. Coats says, "when we find evidences of retinal vascular disease, our first thought is not, *what is the prognosis as to sight*, but how does the discovery affect the prognosis with regard to the patient's life?"

46 WEST FIFTY-THIRD STREET.

THE FIELD OF SURGERY IN ARTERIOSCLEROSIS.*

BY JOSEPH B. BISSELL, M. D.,
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The relation of surgery to arteriosclerosis is intimate and important. Recognizing this trouble as a disease of the tissues and not merely a hardening of the arteries as such, we find ourselves of necessity concerned with all those processes which have a degenerative influence upon the tissues and which can be in any way controlled or altered by surgery.

It is a well recognized fact that chronic suppurative processes lead to degenerative changes in the tissues and organs. The waxy degenerations of viscera are examples of a special type not seen very frequently. The arteriosclerotic variety of degeneration is seen very often indeed. It is a type differing from others in having a definite infiltrative or exudative change rather than the simple chemical one of degeneration. Chronic appendicitis and chronic gallstone conditions are almost invariably followed by arteriosclerosis.

Recently Billings, of Chicago, has spoken frequently of pyorrhœa alveolaris as the precursor of arteriosclerosis. The same result seems to be true of any chronic suppurative process. For this reason it is our duty to urge correction, as far as possible, of such conditions, whether found in the mouth, gallbladder, intestinal tract, or other divisions of the body. It has been pointed out by Vaughan and others that bacteria cause harm, not on account of their being live organisms, but because they act as foreign proteins, and that when the system becomes sensitive to their particular protein, they cause irritation of the cells, leading to destruction and sclerosis. Surgical elimination of these morphological agents is a desirable prophylactic measure. Many investigators have lately made observations showing that arteriosclerosis may possibly be due in part at least to a specific germ pro-

ducing an affection of the bloodvessel walls, especially those of the arteries, and resulting in an obliterative inflammation of the coats of the vessels. The pathology of this process apparently depends upon vasomotor irritation as well as a neurosis.

In the presence of chronic bacterial growth, whether it be founded upon stasis or a true suppurative focus, the damage at first is slight or even negligible. However, in the course of time, a reaction of the whole body against these germs is set up, resulting in a general degenerative process. A warning of approaching trouble may be obtained by early examination of the fundus of the eye with the ophthalmoscope.

Having knowledge of these conditions, an examination should be made to determine whether the arteriosclerotic process is impending. If so, surgical attention should not be delayed. These are some of the general considerations that bring surgery into relation to arteriosclerosis. At various periods in its course the diseased conditions of the vessels may be more or less localized. When the arterial fibrosis is circumscribed in extent, the question of mechanical exclusion of the involved area comes at once to the surgical mind. The veins being usually much less involved, when affected at all, are used to take the place of an affected artery or a portion of the vessel is utilized to carry the arterial blood current, that is to say, an arteriovenous anastomosis is made above the diseased section and the circulation diverted from the artery to the vein. On the face of it this appears to be a theoretically attractive proposition.

The indications for arteriovenous anastomosis are occlusion, narrowing, or obstruction of the artery with consequent ischemia of the part supplied by the distorted circulation. Carrel's feats in suturing bloodvessels in animals have been remarkably successful. Unfortunately as much cannot be said of this same class of operations in human subjects. The immediate result of the procedure has been satisfactory in many patients, but the outcome is disappointing. No case of complete and lasting recovery has as yet been recorded.

Skillful operations along these lines have been performed abroad by Tuffier, von Schmieden, Weiting, Jaboulay, Imbert, and Frederick Mueller, and in this country by Beck, Halstead, of Chicago, and Lilienthal. The anastomosis is made most frequently by means of the end to end method, by the terminolateral Weiting's method, as well as by the laterolateral. Permanent restoration was not obtained in any of their patients. In most cases the communication from artery to vein soon closed by gradual obliteration, by intimal overgrowth, or by early occlusion from a thrombus. Aside from these untoward evidences of its futility, the operation of reversion of the circulation from artery to vein offers little encouragement of a successful result for the following reasons:

1. Because of the obstruction offered by the valves.
2. Because in many cases the resistance offered by a thrombosed vein is not to be overcome.
3. Because in every instance where the flow can be demonstrated, it has been seen to penetrate only as far as the nearest communicating vein and return

*Read before the Medical Association of the Greater City of New York, March 15, 1915.

to the larger venous circulation, in this manner without reaching the peripheral capillaries; that is, the blood is shunted over through the first large venous anastomosis into the heart without any chance of its circulating in the general venous and capillary system.

In a very able article on arteriovenous anastomosis, Halstead and Vaughan reached the conclusion that there is but one indication for the application of arteriovenous anastomosis in surgery; i. e., in traumatic destruction of a principal artery where end to end union of the torn vessel is impossible. In such a case arteriovenous anastomosis may be attempted, and through this device we might obtain a sufficiently satisfactory circulation to preserve the integrity of the part until an adequate collateral circulation is established.

In patients suffering from arteriosclerosis, beside the possibility of arterial rupture when reducing a difficult dislocation or in performing that reprehensible procedure of breaking up an old contracted joint, the surgeon should also recognize the danger in tight bandaging, as well as the likelihood of serious damage following the use of the Bier method of local hyperemia. The application of an Esmarch bandage may result in thrombosis or embolism. Usually these patients tolerate anesthesia fairly well, provided that they have no well marked renal or cardiac involvement. The struggling caused during a badly administered anesthetic, or surgery performed under slight or inadequate anesthesia, is more dangerous than the actual anesthetic itself. General anesthesia is better tolerated in senile arterial sclerosis than in the young adult with arteritis. In these cases secondary hemorrhage is an ever threatening danger. The possibility of gangrene of amputation wound flaps or of gangrene of the wound margins and of the failure of union in otherwise normal clean operations, is always present where there is arterial degeneration. Intestinal wounds, in particular, are unfavorably influenced by arteriosclerosis. Hemorrhages in various parts of the body from friable vascular structures are a usual symptom, calling surgical attention to the disease.

Diminution of the arterial calibre is a cause of pancreatitis, cholecystitis, hepatitis, and other inflammations of internal organs, all of which come more or less often into the realm of surgery. Many of the terrific neuralgias originate in sclerosis of the vessels of a nerve. Among the earliest effects of arteriosclerosis are various nutritional changes leading to the necessity of operative interference.

An important matter is the relation of blood pressure to operation. Patients suffering from very high blood pressure who are to be operated upon, should be prepared beforehand by a period of treatment. In special operations as glaucoma, for instance, the operation should be preceded by a free withdrawal of blood from the general circulation. This rule would be of value applied to other operations, and be an additional safeguard where needed. The surgeon should be very cautious in his surgical procedures in high pressure cases, and during operation be ever ready to heed the warning of a sharp fall in blood pressure. The observation of the blood pressure during operations is ordinarily consigned to the anesthetist, but the operator must bear in

mind the ever present possibility of an imminent and threatening calamity.

One of the most available remedies in the treatment of these patients suffering from high blood pressure is the rapid withdrawal of a fixed quantity of blood from the vascular system by means of venesection. Phlebotomy is an operation of great value as a therapeutic measure in arteriosclerosis. A generation or two ago phlebotomy was almost a daily event, but now it is hard to find it described in recent surgical literature, hence a few hints concerning its technic may be worth while.

Venesection may be performed on any part of the human body where the veins are easily reached, with slight chance of infection or damage to the neighboring structures. A vein in the fold of the elbow is usually preferred. Sometimes one on the back of the hand high up or about the wrist is more prominent or preferred by the patient; rarely these veins may be selected because other usually available sites have already been used up by previous incisions. As a rule, the same vein may be used repeatedly. The instruments used are a curved sharp pointed knife, or a sharp pair of scissors, small and strong, a rubber drainage tube rather firm in texture or an ordinary rubber catheter, a round curved needle with catgut suture ligature in case it is necessary to tie the vein before leaving the patient; a graduated glass beaker to hold the blood, and tincture of iodine or alcohol (seventy per cent.) for sterilizing the skin. Iodine obscures the outline of the vein.

Either the median-basilic or the median cephalic, whichever is the most prominent, is chosen. The arm is constricted at its midportion by means of the rubber catheter or tube. A few drops of solution of novocaine may be used for local anesthesia if the patient is nervous or hypersensitive. It delays finding of the vein, but may be necessary in nervous people. The vein is opened transversely with one stroke of the knife or sharp cut of the fine, firm scissors. Bleeding is allowed to take place until the amount determined upon is lost or until the patient complains of faintness or shows other symptoms.

As a rule, the blood pressure does not fall during or immediately after the removal of the blood; often it goes up a little instead. The patient at once feels relieved. When the requisite amount of blood is taken away, the bleeding is checked by the pressure of a pad of sterile gauze over the incision. The gauze is left on under the bandage as a dressing until the next day. If the wound in the vessel is large and hemorrhage continues, a suture ligature is applied around the vein and it is then dressed as directed above. This slight puncture wound is usually healed over in about twenty-four hours, and only a faint scar remains at the end of two or three weeks. In this way repeated phlebotomies can be carried out on the same vein without permanent injury to the vessel. The two following cases illustrate the benefit derived from this measure:

CASE I. The first patient was a woman in her early fifties with a history of rather high living and insufficient exercise. Her salient symptoms, beside a blood pressure running at times as high as 260, were distress in breathing, sleeplessness, restlessness, severe headaches, and fear of impending mental and physical disaster. She had been

operated upon in this slight manner several times in the past eight years. From twenty-eight to thirty-six ounces of blood had been removed on each occasion, always to her immediate and continuous comfort and great relief. Treatment of her disease was of course carried out by her medical adviser during these surgical measures. This method of surgical interference, beside saving her from almost unendurable pain and discomfort, and apparently from rapidly approaching death, allowed her to live in considerable comfort, and gave back to her physician the opportunity of restoring her to comparative health.

CASE II. Another case was that of a colleague, who, among other symptoms, had an almost constant pressure of 230, and who was thus unable actively to practise his profession. Repeated phlebotomies, together with dietetic and other medical treatment, so improved his state of health that, although he was fifty-seven years of age, he was soon able to return to the stringent duties of his profession with comfort and contentment.

Even if high blood pressure is only a symptom and phlebotomy only a temporary expedient, in the writer's experience this measure is usually the cause of great and permanent relief in all these cases under our consideration. Venesection, when properly advised and adequately performed, undoubtedly prolongs life and gives opportunity for other and perhaps more permanent measures to treat successfully this very prevalent and often fatal symptom complex known as arteriosclerosis.

46 WEST FIFTY-FIFTH STREET.

EPISTAXIS IN ARTERIOSCLEROSIS.*

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Of the spontaneous nasal hemorrhages one is called upon to treat, a large majority are arterial and come from the septum in its anterior part, although the bleeding in rarer cases may come from any part of the nasal mucous membrane. The anterior part of the septum contains the terminal filaments of the artery of the septum, which comes from the internal maxillary and also to a lesser extent those of the descending palatine which reach the nose through the anterior palatine canals. This makes a region fairly rich in blood supply. Normally these vessels are supported by the mucous membrane and covered with ciliated epithelium, but there is no part of the nasal mucous membrane so liable to erosion as in this particular region. The reason is not far to seek. In the first place, it is accessible to the finger and is injured in picking the nose; moreover, this is the first part of the nasal mucous membrane to come into contact with the inspired air, and as this must become saturated with moisture before it leaves the body, a function almost entirely performed by the nose, it is evident that nasal secretions are more liable to dry into crusts here than elsewhere. The dust in the air is also largely strained out in the nose, and therefore settles here to augment the crust. Sharp particles in the inspired air can also produce traumatism, leading to an abrasion with formation of a crust. As this crust, however formed, is repeatedly removed by the finger, there results an erosion with loss of sup-

port to the vessel walls. These erosions are, as a rule, not serious affairs and readily heal, either with treatment or in consequence of a change in the atmospheric conditions. The annoyance may have been so slight that the patient has forgotten all about it. Still these erosions or evidences of their past existence are quite common. Now, with increased blood pressure the vessels in these areas, having lost their support, perhaps also part of their wall, give way. It is not uncommon to see a very small aneurysmal dilatation at the seat of the hemorrhage; sometimes the artery leading up to it can be traced some distance up the septum. When hemorrhage takes place from one of these little arteries, it is sometimes startling how free it may be. The blood will not only appear on the side involved, but will pass into the throat and, a clot forming here, it passes around to the other side, giving the patient the impression that he is bleeding from the other side also.

Some of these patients bear the loss of blood poorly. They are more liable to faint than other patients. What the remote effects on the course of the disease may be I am unable to say—as illustrating this I may refer to a case in which a professional friend of mine removed the tonsils in a middle aged lady, with a blood pressure of 220 before the operation, and after it remained at 140 for about fourteen hours, patient in the meantime lying in a semiconscious state. As the blood pressure rose, she became more normal until it reached 200 with the patient in her usual condition. In this case no doubt, shock was also a factor. In treating these cases, if we are called while bleeding is taking place, our first duty is to stop the hemorrhage—this we do by passing a cotton pledget soaked with adrenaline well into the anterior nares and, if necessary, exercising pressure against the septum with the finger upon the alæ, or the patient may do this. In a very short time usually, we can remove the cotton and find that the bleeding has stopped. If it is still bleeding, we reapply the pledget. When it remains dry upon removal of the cotton, we proceed to cauterize the point from which the blood has flowed. For this purpose a fused bead of nitrate of silver will be found very satisfactory—it seems to destroy just enough tissue to seal up the artery causing the trouble, with a firm scar which can usually be seen if the nose is inspected a week later.

If we see the artery running up to this point, the silver bead may be supplied at one or more points along its course, in order to obliterate it. The patient is to be supplied with adrenaline and instructed how to apply the pledget and proper pressure should bleeding recur. The patient will thus not only be able to arrest the hemorrhage promptly, but also has much more comfort—feeling, as he does, that he has the means at hand to stop it should it recur. The small amount of adrenaline used cannot have any appreciable effect on the blood pressure.

If the bleeding point is farther back, as it will be occasionally, we pass our pledgets much deeper into the nares, endeavoring to exert pressure upon and bring the adrenaline into contact with the bleeding area. If in this way we do not arrest it promptly and the blood pressure is very high, remedies should be given to reduce it as quickly as possible. I will

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not suggest these, as I consider this to be the duty of the internist who has the case in charge. As a last resort, we may be compelled to plug the posterior nares; although this procedure is perfectly easy and is fairly certain to arrest the hemorrhage, it is disagreeable to the patient and is not free from danger. The blood under pressure flows into the middle ear, the maxillary antrum, or frontal sinus, and may lead to suppuration in any of these cavities. I performed a mastoid operation about a year ago in a case in which a suppurative process was caused by postnasal plugging.

One other point may be considered here: Is it desirable to stop the hemorrhage in all cases? I have always felt it my duty to stop the bleeding as soon as I could and prevent its recurrence. I am prepared to believe that in florid types the bleeding has done no harm, but they have usually lost all the blood necessary for therapeutic purposes before I have seen them. In the anemic cases there can be no doubt that loss of blood is undesirable in every way.

The belief that the bleeding will do good may be a consolation to one failing to arrest it promptly, but its philosophy is open to doubt nevertheless.

127 WEST EIGHTY-SECOND STREET.

ARTERIOSCLEROSIS AND THE CONTROL OF UTERINE HEMORRHAGE.*

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Arteriosclerosis, as is well known, occurs much less frequently in women than in men, because of the more temperate habits of life of women, who as a rule eat less than men and are less subject to the usual etiological factors common to the production of sclerosis of the arteries. In considering arteriosclerosis with regard to its influence upon uterine hemorrhage, it seems to me that we must distinguish two groups of cases: First, a group in which arteriosclerosis is associated with changes in the heart, liver, or kidneys, leading to a condition of passive congestion of the pelvic organs from obstruction to the circulation and thus inducing uterine hemorrhage indirectly; second, a group in which the sclerosis is especially marked in the uterine vessels, without special evidence elsewhere of its presence.

By a number of investigators, arteriosclerosis alone is regarded as the chief factor in the production of severe uterine hemorrhage. A study of the case reports of many of these writers, however, leads one to believe that this bleeding may have resulted from obstruction to the return circulation outside of the uterus. Therefore some authors believe that positive evidence is lacking that arteriosclerosis can in itself be the cause of uterine hemorrhage, but that as a rule one will find additional causes leading to circulatory obstruction. "Reinecke and Martin performed hysterectomy in thirteen cases for the control of hemorrhage, and in all the removed uteri the arteries were found sclerosed, but they did not exclude the possibility of obstruction to the return circulation from such causes as diseases of the heart and lungs, thrombosis of the venous trunks, and

portal congestion from whatever cause. In the eight cases reported by von Kahliden the post mortem findings showed anatomical hindrances to the circulation in every case." (Findley.)

The arteries of the uterus are subject to the same influences leading to the development of sclerosis in their walls as the other arteries of the body. In addition, there is no doubt that menstruation, abortion, pregnancy, and inflammation of the uterus are important factors leading to the development of sclerotic changes in the uterine vessels themselves.

These cases all occur in women who have reached or passed the menopause and in whom a persistent bleeding, either menorrhagia or metrorrhagia, occurs. The hemorrhage may be severe and uncontrollable by all means except hysterectomy, thus frequently leading to the latter operation for its relief and to save the patient's life.

Careful clinical and bimanual examinations of the uterus and annexa are negative, as is also, frequently, microscopical examination of the scrapings from the uterine canal, which are not apt to show the sclerosed vessels because they do not always lie in the endometrium.

The uterus, when removed in such cases, is usually found to be enlarged and is regarded as having undergone subinvolution. On microscopical examination, however, "the smaller vessels in the mucosa are increased in number and their walls, instead of consisting practically of a layer of endothelium, are thickened by a deposition around this layer of concentric lamellæ of fibrous tissue with well stained nuclei." (Barbour.)

These changes are to be seen in various vessels throughout the entire thickness of the uterine walls. There is also round cell infiltration and increased fibrous tissue growth throughout the uterus. The walls of the uterus are heavier, firmer, and more dense than normal, and the uterine vessels stick out prominently all over its cut surface. Kelly says that in these cases "it is noteworthy that this disease is a local affection which does not even involve the uterine artery and is not associated with a sclerosis of the other vessels of the body."

Diagnosis. The clinical diagnosis of this condition is extremely uncertain and must be made by exclusion after careful bimanual examination and curettage have revealed no other cause for the hemorrhage.

Treatment. The common form of treatment for persistent bleeding from sclerosis of the uterine vessels has been hysterectomy. The x rays, however, are often effective in the control and cure of these hemorrhages, and may be used without fear of any harmful effect upon the ovaries, as these women are all at or beyond the menopause. Recently, Kelly and Burnam have reported very excellent results in the cure of uterine hemorrhage by the use of radium.

It seems to me, therefore, that these cases should be given the benefit of treatment by radiation either with x rays or radium, in which the danger of a serious complication is practically nil, before subjecting them to the risk of an operation as severe as a complete vaginal or abdominal hysterectomy which, under the best conditions, is apt to have a mortality of from two to three per cent.

535 PARK AVENUE.

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ARTERIOSCLEROSIS WITH RELATION TO PROSTATIC OPERATIONS.*

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During, or near unto the fifth decade of life, about one of every five men is afflicted with prostatic hypertrophy. It is at or about this point of the life cycle that arteriosclerosis commonly makes known its presence. These two postmeridional diseases may be coincidental in the same man, but clinical experience has shown that they bear no causal relation. Since arteriosclerosis is not present in every elderly man, and since only twenty per cent. of old men suffer from prostatic hypertrophy and only a portion of these twenty per cent. have obstructive conditions demanding operation, and since all arteriosclerotics are not bad operative risks, therefore examples of these combined conditions calling forth all the sagacity of the surgeon, are not common.

When a patient presents himself with obstructive prostatic hypertrophy and arteriosclerosis, what conditions justify the risk entailed in their surgical relief and what conditions absolutely prohibit this relief? The comparatively sparse literature on the subject shows a general agreement on fundamental principles, but marked disparity in clinical experience and results. Nelken (1), Wallace (2), Day (3), Layne (4), Moore (5), J. A. Day (6), and A. P. Cole (7) report successful issues in their case reports in arteriosclerotics. Pember and Nuzum (8), Judd (9), and Plondke (10) mention arteriosclerosis as a factor in the determination of the operative risks, but give no specific details as to their practice. General surgeons as Lilienthal (11), Kümmel (12), Murphy (13), Deaver (14), Lower (15), Scott (16), and Wade (17) make no mention of arteriosclerosis in connection with their prostatectomies in their later writings. At a symposium on prostatectomy, in 1912, before the Mississippi Valley Medical Association, no mention was made of the coincidence of the two diseases by such participants in the discussion as W. Mayo, Ochsner, Cabot, Kolischer, Bransford Lewis, etc. (18).

When the urological surgeon is called upon to make a decision as to whether he will remove the prostate of an arteriosclerotic, it is not any one factor of danger that outweighs another, but the large composite clinical picture of those vital systems which control life. Specifically, the heart, kidneys, nervous, and hemic systems need the closest study, and since the operation is one of election, no excuse is tenable for the omission of careful pre-operative study of these essentials.

Cardiovascular system. A heart which is functioning with a fair degree of satisfaction, whose valves are moderately tight, and whose compensation is reasonably established, will tolerate operative stress surprisingly well. Organs with aortic lesions usually do not behave so well as those with mitral insufficiency, or so well as those with mitral stenosis,

unless the latter is extreme and thus predisposes to postoperative pulmonary complications. High arterial pressure alone is no contraindication to operation. On the contrary, other conditions permitting prostatectomy, the pressure is partially relieved by the preoperative preparation and by the bloodletting incidental to the enucleation of the gland.

Nephritis. A very large number of these patients suffer from nephritis in various forms and intensity. So common is nephritis in arteriosclerosis that it is yet debatable how nearly the conditions are interdependable. Gall and Sutton (19) call attention to the fact that certain disease conditions affect the entire vascular system as a unit. Some cases of chronic disease of the kidney have been regarded as but part and parcel of general arteriosclerosis.

The diversity of opinion on the best method of determination of the kidney function is ample evidence of the inaccuracy of them all. The phenol-sulphonephthalein and indigocarmin tests are most accepted. Some surgeons show unsurpassed clinical results by depending entirely upon the urea output, comparative tables of solids excreted, and upon the prevalence of renal elements under the microscope. P. M. Pilcher (20) has best formulated the danger zone of prostatectomy in the nephritis with phenol-sulphonephthalein. Most usually he performs the two stage operation. After the suprapubic drainage, he expects a temporary drop in the phthalein from sixty to fifteen per cent., then in from ten to fourteen days, the percentage excreted usually rises to fifty per cent. Unless this secondary rise takes place, he declines to complete the operation. Up to the present, this is the most rational and logical method presented to surgery, and his mortality tables, compared to those of the general surgeon, bespeak the highest degree of conservation of the lives of these old men. Thomas (21) relies upon the indigocarmin test and has worked out an index of elimination which he finds his best guide. Hugh Cabot, in his discussion of Thomas's essay, sounds the clearest note of all in questioning any single test as infallible, and believes that a test which will determine the nitrogen retention and output is safest of all. Unfortunately for the patient and the surgeon, the Folin test is so complicated and so tricky of technic that its practical application must at present be reserved for those who are in proximity with a most modern physiological laboratory. Many operators place entire dependence on quantitative urea and solids tables for their decision in nephritics, also on the microscopical findings of casts and other renal elements.

Nervous system. In the consideration of the nervous system, all must be left to the personal equation of the patient. Some men approach the operating table with equanimity, others exhibit a terror almost equal to that preceding execution. The consequences of such a psychoneurosis are sufficiently well known to the surgeon not to require elaboration here.

Coagulability of the blood. There has been little attention paid to this phenomenon by the operators and none of the urologists has given attention to it in his writings. When the fibrin ferments of the blood undergo certain changes, clotting is hastened.

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Coagulation within the vessels may occur, and thrombi or emboli result with their sometimes fatal ending. The only microscopic alteration observable is an increase in the blood platelets. Whether this increase is a cause or an effect has not been settled. The increased coagulability has been ascribed to the same etiological factor as that of arteriosclerosis, to wit, the circulation of toxins in solution of exogenous nature or the endogenous toxins formed from degeneration or disintegration of the cellular elements of the body.

A simple bedside test for coagulability is that of Milian (22). A fair sized drop of blood is placed on a glass slide, and after a minute or two is gently tilted sidewise then back to the horizontal; at the moment of complete coagulation, the drop takes a convex moundlike outline; before complete coagulation it resembles a tear. It requires about five minutes for normal blood to coagulate with this test. A more accurate test is that with the Addis's coagulometer (23). This instrument is precise in that the droplet is subjected to a constant degree of warmth, and each droplet is subjected to the same area of contact with air and foreign material. The average time required for coagulation with this instrument is seven and one half minutes. No index of safety has been formulated with regard to increased coagulation or increased viscosity, but if the blood coagulates in very much shorter time than stated in these tests, prudence suggests that we make every effort to push liquid ingestion until the actual bulk of blood is increased.

Precocious arteriosclerosis. An "old young man" is usually a bad surgical risk. According to life insurance medicine, the very old men are better off with arteriosclerosis, which may account why they so often do well after prostatectomy. On the contrary, precocious arteriosclerosis is a disease which is frequently associated with inferior bodily warp and woof and with organic or degenerative changes elsewhere in the body.

The operative cycle logically divides into three periods, preliminary study and preoperative preparations, the technic of the operation, and the postoperative treatment. The preliminary study consists of examinations of the heart, lungs, observations of the blood pressure, uranalysis, determination of the renal function, studies of the viscosity and coagulability of the blood, the general state of nutrition, nervous condition, and the emunctories. The preoperative preparation consists of confining the patient to his bed with an indwelling catheter and cleansing irrigations of the bladder twice daily. Should there exist a large amount of residual urine (500 c. c. or more) its removal should be accomplished very gradually. Guyon's technic, *par étapes*, is safest. The sudden removal of a large quantity and subsequent constant drainage through a *sonde-à-demeure* is dangerous, since it allows a sudden refilling of bloodvessels hitherto practically empty, which in turn may cause annoying pain and hemorrhage. Likewise, the sudden removal of a pressure against which the kidneys have accustomed themselves to function, often results in alarming reduction of urine and urea output.

If arterial hypertension is present, it lessens under rest in bed, the restricted diet, catharsis, and

the general hygienic life of the preoperative week. Stimulants such as strychnine are but rarely necessary and should be reserved for possible postoperative emergencies.

During these preoperative days the anesthetist should examine the patient and decide upon which anesthetic he prefers. It has been our practice to respect the narcotizer's judgment and to place his responsibility fully before the patient and the family. If the patient shows extreme nervousness at the thought of his approaching operation, we do not inform him of the precise date, but make all arrangements and inform him an hour before the time appointed, when he receives his preliminary injection of morphine and atropine. This gives sufficient time for the shaving and prevents the nervous individual from counting the hours.

When these details are omitted and the important preliminary study is neglected, mortality percentages climb. Weller Van Hook (24) sagely remarks that the interns well know the high mortality of hospital prostatectomies. Barnett, of Fort Wayne, in a discussion does not mince his words. He says it makes a urologist shiver to see the general surgeon place a prostatic on the operating table on the day after admission. He voices the general sentiment that there should be a week or two of preparation with an inventory of the body pathology and he believes that the preoperative and postoperative treatment should take precedence over the operative technic. He attributes one half of the general surgeon's mortalities to these omissions.

Although the operative technic is the least important of these periods, one cannot accept it as unimportant. Whatever route of attack the operator has selected, he should be most familiar with it, have a clearly defined plan, and have made all possible preparations for emergencies. A great Frenchman once remarked that if he was obliged to submit to an operation, he preferred to be operated upon by a man highly skilled in one operative method. The tiniest detail of instruments, sutures, etc., should be ready and waiting before the narcotizer puts his cone over the patient's face; thus valuable minutes are saved and resistance is conserved to the utmost.

It is in the postoperative period that the surgeon's skill and wisdom may turn defeat into victory. Collapse and shock, uremia, thrombosis, and embolism are the most prevalent causes of poor results and are possible complications in arteriosclerotic patients. It is not within the scope of this subject to discuss their treatment.

A previous high blood pressure diminishes after prostatectomy, owing in part to the preoperative preparation, and in part to the hemorrhage incidental to the operation. By pushing the ingestion of liquids, diuresis is obtained and the coagulability of the blood lessened.

PERSONAL EXPERIENCE.

In seven prostatectomies which we have performed on patients with arteriosclerosis, none died. The highest blood pressure noted was 220 mg.; the lowest 145 mg. In three cases the pressure was not obtained, but there was noticeable thickening of the palpable arteries and full bounding pulses. In each case nephritis was present. Two of the patients showed severe parenchymatous nephritis with

numerous and various tube casts; the remainder were interstitial in type. In each patient the lungs were free from tuberculous or solidified areas, but bronchitis was present in each. Their hearts were, in general, good. The coagulability and viscosity of the blood were not ascertained. No emboli or thrombi formed during the postoperative period. Five of the operations were suprapubic and the other two were by the perineal route. The phenol-sulphonaphthalein test was used in but one case, and it showed a satisfactory percentage of elimination. The operative decision in the other patients was based upon the urea and total solids eliminated. Two cases were refused operation because the total urea per diem was too far below normal and the cardiovascular systems were in such damaged state. Two cases were complicated by vesical calculi. All operations were done in one stage.

The periods of preliminary study ranged from three months to one week; the actual preparatory period ranged from four to ten days. With regard to age, all had reached that age of physiological (?) arteriosclerosis, beyond fifty-six years. None had been precocious.

CONCLUSIONS.

The clinical composite which makes up the picture of arteriosclerosis does not contraindicate prostatectomy.

If the heart functions moderately well, arterial hypertension is negligible, since it is amenable to reduction by preoperative preparation or automatically falls after operation.

In the presence of all cardiovascular and cardio-renal contraindications, the two stage prostatectomy has been, and frequently can be, carried to successful termination.

The utmost care must be accorded in the preoperative and postoperative periods, and the operative technic should be certain and rapid.

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171 WEST SEVENTY-FIRST STREET.

ARTERIOSCLEROSIS IN ITS RELATION TO LIFE INSURANCE.*

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I am going to devote the space allotted me to a discussion of the relationship existing between arteriosclerosis in its insidious approach and life insurance risks—an application of what has been said to a business problem of supreme moment, and involving a presentation of experiences that will lend emphasis to the opinions advanced by others. The early detection of tendency to hardening or to atheroma, as revealed by abnormally high blood pressure, has come to be regarded as of preeminent importance in the examination of applicants for policies, as even more significant than the existence in the urine of a few casts or a trace of albumin, which may be fleeting as due to a mere temporary irritation from the products of suboxidation or putrefaction. In other words, the examiners for life insurance companies have begun to look not only for indications of the actual existence of cardiovascular renal disease, but for symptoms that suggest its imminence in the future. It cannot be long before inquiry will be made regarding habits of life that account for the appearance of such symptoms, as the conviction exists among all investigators that hypertension is the indisputable forerunner of organic complications that will shorten the life of an apparently well man. The quality of an insurance risk must be determined by the daily habits of an applicant, inasmuch as those habits pave the way for a premature breakdown or a green old age.

It is well known to our profession that a common victim of nephritis is the man, apparently robust, "whose blood test excludes anemia and specific disease, whose uranalysis may show no sugar, albumin, nor casts, whose heart, lungs, and liver are organically perfect—the man who never does anything morally wrong, but labors all day long in the employments of a sedentary office life for his family's comfort (sixty per cent. of our population are working indoors), lays a heavy strain on his liver and kidneys by overloading his stomach three times a day beginning with a hearty breakfast of proteids, following it with an equally substantial luncheon, and coming home at night exhausted in more ways than one to swallow a meat dinner out of all proportion to his powers of assimilation. After which he seeks an easy chair and smokes himself into a poisoned sleep—practically no exercise to burn up what he eats, the revenues of his body vastly in excess of the outlay, compensation destroyed, nutritive equilibrium disturbed, corpulence and breakdown impending. Such a man is a bad risk; and the insurance companies are finding out to their cost that, in the words of a country doctor I once knew, he is digging his grave with his teeth, and he fills it in his sixth decade. It is probably no exaggeration to ascribe fifty per cent. of all deaths of insured persons to the hypertension and sclerosis consequent upon this kind of life, either directly or indirectly, as the proximate cause of pneumonia, bronchitis, pulmonary edema, and allied conditions.

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(Cf. Doctor Cook's paper read by Doctor Pillsbury, at the meeting of the Medical Section of the American Life Convention, Pittsburgh, September, 1911.) Overeating, through the immediate action on the vascular system of irritant poisons formed in the intestines, creates hypertension, and this is the unambiguous cause of arteriosclerosis which may reach a climax in apoplexy, or by overtaxing the heart induce myocardial conditions or lead to renal disease. The insurance companies fully apprehend that longevity is indeed a vascular question, and so require a perfect understanding of the vascular status of the man who applies for a policy.

The automobile and other means of easy and rapid transit which the pressure of vocational and social obligations demands in this day, has stolen from our business men their opportunity for exercise that a necessity for walking so freely offers, and well-to-do women have essentially given up the practice and are whirled from place to place in their cars. The automobile habit is thus breaking down constitutions where the remoter bicycle habit up-built them. It has crept into the country districts also; and rural dwellers are affecting it, making no difference in their dietary of heavy proteid foods, and depriving themselves further of health giving exercise by relegating to farm machinery the manual labor that formerly enabled them properly to digest and to eliminate. Such dwellers of the open, so long associated with vigor and length of life, are not as good risks as they used to be.

It is doubtless true, as stated by Elmer Rittenhouse, the conservation expert, that American vitality is gradually lowering, and that there are more deaths than formerly between forty and fifty years, from the degenerative disorders of mature life—apoplexy, cardiorenal and circulatory diseases, and cancer. The increased death rate during the last twenty years (from twenty-seven to thirty-eight per 10,000), which is rightfully attracting the attention of our insurance companies, cannot be laid to general causes, but rather to habits of living that have developed with the refinements of civilization, notably the excessive consumption of alcohol, tobacco, and protein fare, and the lack of active exercise properly to oxidize the food and carry off the accumulated poisons. Dr. Oscar H. Rogers, chief medical director of a prominent New York life insurance company, has stated in a letter to me that there are numerous cases which would have formerly been regarded as normal insurable lives that are now rejected by reason of high blood pressure, and that in his experience the underlying cause of hypertension in fifty per cent. of the cases, is intestinal toxemia, and in most of the remaining fifty per cent., habitual overeating. Now, as intestinal poisoning is due to erroneous diet, it is fair to assume that overindulgence and improper indulgence at table explain the abnormally high arterial tension in the majority of these applicants for life insurance.

These questions now appear in the examiner's certificate: Do you use malt or spirituous liquors in any form? Daily quantity? (Based on the belief that if alcohol does not harden arteries it inhibits elimination of the poisons that do.) Do you use

tobacco in any form? Daily quantity? (Based on the assumption that nicotine causes a rise in blood pressure followed of course by a fall, which demands repetition of the narcotic.)

I predict that within a few years will be put the equally important inquiry: What do you eat? How much? What are your habits of exercise?

Whereas the average length of human life is greater, and there is no evidence that ordinary policy holders are dying earlier than formerly, the average age of dissolution among the industrial policy holders of a great industrial insurance company being forty-two, among the ordinary policy holders forty-six years, greater caution is exercised by life insurance examiners, who are better informed as to the causes of such deaths, in the interpretation of blood pressure. A pressure above 150 at the age of fifty years is regarded as prohibitive by this company. Another prominent company regards a blood pressure higher than the average by about fifteen per cent. as probably safe, accepting the following averages as normal:

Age 20.....	120.....	probably safe	137
Age 30.....	123.....	probably safe	140
Age 40.....	126.....	probably safe	144
Age 50.....	130.....	probably safe	148
Age 60.....	134.....	probably safe	153

Cases of blood pressure exceeding the probably safe limit, when kept under observation, have been found sooner or later to show albumin and casts, and are likely to terminate in Bright's disease or apoplexy. It is to be remembered, however, that many cases of arteriosclerosis have a normal or even a subnormal blood pressure.

Low blood pressure is less significant from the viewpoint of the insurance companies. An adult pressure under 105 is regarded with suspicion. It is interpreted to imply diminished powers of resistance, and in persons belonging to tuberculous families or living amid unhygienic surroundings, to intimate quiescent tuberculosis.

The appalling strain that human beings are subjected to in this modern civilization may be evolving a stronger race, better adapted to endure it. But a life insurance company is without prescience, and cannot intelligently select from the ranks of those who are playing with fire the few who will not be burnt, without the exercise of all but superhuman precautions.

127 WEST SEVENTY-THIRD STREET.

AN EMERGENCY MEDICINE FOR THE SOLDIER.

BY HIRAM H. SEELYE, A. M., M. D.,
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The military authorities of the world have devised and instituted many advanced methods for averting sickness in camp, expediting recovery of the disabled, and reducing fatalities among the wounded on the field of battle. So field hospitals, Red Cross ambulance service, and emergency first aid packages carried by each soldier, are doing much to minimize the serious consequences that would otherwise follow a too long neglected wound. But no provision seems thus far to have been made to alleviate the

acute sufferings of those unfortunates who are often compelled to lie in the open field or behind the trenches, with bullet holes in their bodies, or their flesh torn and mangled by pieces of shell or shrapnel, enduring torture for hours or days, while the fighting is going on so fiercely that no efficient aid can reach them until the hostilities are temporarily suspended. Many harrowing experiences of abandoned, lost, or hidden wounded combatants have appeared in the press accounts of prolonged battles in the great war now raging on the continent, but comparatively little mention is made of the intense suffering endured by these neglected cripples during the long hours that must often elapse before outside succor can reach them. Each unit is left to his own resources, for which little provision has been made by his superiors.

Let us, as physicians, imagine such an emergency as a personal matter, and consider, for instance, what precautions we should individually take for our own comfort and safety were we about to be ordered forward in the front line of battle, or be forced to await in the trenches the charging enemy. Would not every one of us see that we were provided with an adequate supply of morphine, or other efficient anodyne, concealed somewhere about our person for immediate use, in case we were wounded or likely to suffer in any way while cut off from the resources of the field hospital, nurses, or army surgeon? The government authorities would have furnished us with a first aid packet containing bandages, dressings, and antiseptics, but we should search there in vain for any means of alleviating the agony accompanying pierced and torn flesh or broken bones. We should then instinctively and gladly have recourse to the little friendly vial of morphine tablets that our selfish foresight had prompted us to provide against just this emergency. Then why should we grudgingly withhold such relief from our less fortunate wounded comrade, to assuage or minimize his suffering until more intelligent and efficient outside resources can be brought to his aid? Provision is made for him to dress and bind up his own wounds, but no means is furnished by which he can relieve his own or his neighbor's protracted pains. A humane spirit would therefore lead us, as physicians, to suggest something for our less informed brother, that he could immediately employ without detriment, as we ourselves should in like straits.

It seems strange and inexplicable that a beneficent Government should so far provide for the welfare of the sturdy soldier lingering in the protection of the trenches as to supply warm clothing, abundant food and drink, and such comforts as are possible, and then at once suspend its solicitude as soon as he is physically disabled by the enemy's guns, until, after long delay, he can be so patched up by the army surgeon as again to be made available for active duty. If he meanwhile dies in agony, what matters it? Or if he eventually survives the mental and physical tortures of long neglect, he will fondly think the suffering to have been inevitable, and will have the satisfaction only of a harrowing tale to relate to his friends at home. But we ask, Why should such suffering be unavoidable when we have means unhesitatingly employed by the man at home for

allaying such evils? Does not the average civilian in times of peace go to his private medicine chest, his friendly neighbor, or the nearest drug store for some well known analgesic, for his acute headache, toothache, neuralgia, stomach ache, or any sudden ill, when a physician is not readily available, or too costly, or the ailment seems likely to be only temporary or trivial? Or, in case of a painful accident or a broken bone, would not any kind neighbor with such a panacea, unhesitatingly administer it for temporary relief, while waiting for the arrival of the distant or unavoidably delayed surgeon? How unpardonable then is the neglect of the Government to provide the individual units of the multitudinous fighting force of an army with some such immediately available solace for use while expecting the coming of the medical officer, who can attend only one at a time, of the many hundreds of wounded impatiently awaiting his aid in or near the field hospital, while numerous others remain unattended for hours or days before transportation is furnished or they are picked up by the ambulance.

Were the medical department of the Government to supply each combatant with a few doses of a harmless, but rapidly efficient anodyne, as one of the items of his first aid packet, in the form of a tablet or lozenge that could be readily swallowed with a drink of water, or even chewed up and consumed in a dry state, he would, as instructed, when wounded, immediately take one or two. Within half an hour, and at about the period when the first numbing shock to the injured nerves is beginning to give place to torturing pain, the patient would begin to experience the alleviation of the drug, and thereafter could await in comparative ease the arrival of a rescue party. Should that be too long delayed and, after five or six hours, the pains increased in severity, he would again, as directed in the label on the package, repeat such dose as was at first found efficient. Should his own limited supply of the drug be exhausted, he could then resort to the kits of the neighboring dead or wounded to replenish his store.

Granted that the Government is convinced of the advantages and desirability of instituting some such measures as these proposed, the question of the nature and composition of the suggested anodyne is open to consideration. There is a combination of drugs which ought most completely to cover the requirements, as having by constant employment for many years by the writer and others proved itself most satisfactory in its all round adaptability. The formula herewith suggested consists of acetanilid six grains, morphine one sixth grain, oil of wintergreen one eighth grain, and saccharin one eighth grain. These ingredients, when compressed into a tablet, form an efficient, convenient, and palatable dose, either for immediate consumption or for dissolving in the mouth, where its virtues are quickly absorbed through the mucous membranes of the upper alimentary tract. Of course, the saccharin and wintergreen are included only to give an agreeable taste, while the active ingredients are the morphine and acetanilid, which are harmonious adjuvants. It must be remembered that every member of the service has undergone a strict physical examination before enlistment, and is therefore at least an average healthy man, with no heart weak-

ness, anemia, or other organic defect, and is so robust that no untoward action of these drugs needs to be specially guarded against, as in the case of weak, broken down constitutions, such as are often met with in private practice. It is also well known that, beside being an efficient anodyne, morphine stimulates and strengthens the action of a weak or failing heart, soothes the irritability of the nerves, and lowers the activity of most of the physiological functions, thereby retarding general metabolism and conserving strength and vitality. Only in very excessive doses has it an element of immediate danger, and in prolonged use, the risk of forming an unfortunate habit. For its employment as here recommended neither of these objections has sufficient force to weigh against its great advantages. As for the other active ingredient, acetanilid, its remarkable anodyne properties are, in civil life, knowingly or ignorantly, called into daily use, not only by physicians, but by the laity as well. This pecuniarily cheap, but otherwise most valuable, chemical possesses properties, in addition to its rapidly sedative one, that make it especially adaptable to the purpose in view. It is a profound equalizer of the circulation, promptly relieving the congestion of an area of hyperemia in any part of the body. Whenever inflammation threatens, the tendency of the drug is to withdraw from those tissues the oversupply of blood, check the development of the inflammatory process, and promote its resolution. Again, its marked antipyretic properties are brought into play, if invading disease germs or infection of an unclean wound have induced a toxemia with its attendant fever, headache, delirium, and rapid exhaustion of vitality; all these symptoms quickly yielding to one or two doses of the drug. Combined with morphine, a state of salubrity and quiet is induced, in agreeable contrast to the previous trying nervous excitement and mental and physical anguish. Still another useful property of this many featured chemical is its antiseptic power, which may at times be called upon in the disinfection of wounds, as will be explained later.

In this proposed combination of drugs, therefore, we have an almost ideal measure for combating one of the most trying ordeals of modern warfare, the hours of helpless suffering endured by the wounded when experienced medical attendance is denied or delayed. So let the Government provide every combatant with a box or vial containing only six or eight such tablets as suggested, a supply so small that the liability of taking excessive or dangerous amounts will be practically eliminated, and let each package have printed on it brief but plain directions for its use, and let it form an integral part of his emergency first aid outfit, where it will be subject to official periodical inspection, as is the rest of his equipment. Thus any surreptitious or excessive use of the drugs will be detected and call for an explanation.

Thus equipped, after an engagement the wounded soldier would at once open his emergency kit, cleanse the dirt from the wound as instructed, and either cover the exposed bullet holes with an unbroken tablet, or insert one, whole or crushed to a powder, into a gaping, lacerated wound, and bind it up as usual. At the same time he would chew up

or swallow one of the tablets, to combat the pain that has already, or will soon, set in. If the pain is endurable he would wait an hour or so before deciding whether an additional tablet was necessary, but if the distress was intense he would take a second tablet at once, or after a shorter period of waiting. Rarely would more than two or three doses be required temporarily to subdue the pain to a bearable limit. Then, if no outside aid should have arrived after four to six hours, as the suffering increased, the dose could be repeated. Thus the long hours of waiting could be spent in ease or sleep, till his wounded body was found and picked up by the search party sent out to the field after the battle has ended or night has spread its friendly veil over the scene of carnage. Should he be so severely injured, however, or so unfortunate, that succor failed to arrive in time, the going out of his life would be rendered as easy and devoid of suffering as if he was attended at home by his family doctor, whose duty it is to prevent unnecessary suffering at the inevitable hour of dissolution. Where the soldier is so far disabled as to be incapable of administering to his own needs, rarely will there be a comrade lacking in the immediate neighborhood, who will gladly offer his aid, and supply from his own packet, if needed, the comforting drugs that will soothe the suffering or secure a happy euthanasia to his expiring friend. So may we humanely lessen the dread and haunting fear of dying alone, neglected, suffering, and uncared for, of the soldier about to go into action.

In addition to the local hemostatic action of the powdered tablet directly applied to the bleeding surface, the prompt internal use will produce a constitutional effect of relieving the pressure of blood in the wound, by promoting a more equable distribution of the circulation, and so tend to lessen the danger of exhaustion from excessive hemorrhage. Any experienced administrator of acetanilid will bear witness to this invariable reduction of local hyperemia brought on by injury or whatever cause. A slight feeling of intoxication, faintness, or vertigo, sometimes experienced soon after its internal use, is merely a temporary consequence of the effect on the nerve centres which soon disappears, and in a healthy adult, is of little consequence. Only repeated or large doses will occasionally induce the unnecessarily dreaded cyanosis, which shortly vanishes as the hemoglobin of the blood gradually becomes oxygenated and regenerated. Heart failure will rather be deferred than promoted by the use of this combination of drugs, for the morphine will be getting in its work as a stimulant while the other ingredient quiets the nervous and muscular excitement that tends to encourage undue hemorrhage. The therapeutic action of these drugs is progressively intensive and complementary, the one responding promptly, often within five or ten minutes, while the other, being less quickly absorbed, backs up and increases the sedative effect.

Not only will the benefits of this handy emergency tablet be appreciated by the wounded soldier on the battlefield, but also by the disabled aviator after a fall, the entombed operator of a sunken submarine slowly dying of suffocation at the bottom of the sea, and the bluejacket or marine put out of action while

fighting on shore far from his ship or hospital base. In less serious cases, also, its aid may often be invoked, in the camp, on the march, or in the trenches, for those milder ailments for which in private life the costly services of a physician are so often dispensed with. The soldier with a headache, toothache, neuralgia, "rheumatic" twinges, colic, diarrhea, cold, tonsillitis, fever, threatened pneumonia, or other seemingly trivial affection, may often abort it, or get sufficient temporary relief, by a resort to his emergency kit, without leaving his duties to visit the dispensary, or troubling the surgeon to prescribe for him. His outfit being periodically inspected, he would be obliged to report all such cases of self medication, to account for the missing tablets, this being a guarantee against their illegitimate use; and as the individual supply is limited and the ingredients of the tablets are unknown to the enlisted man, the formation of a drug habit is little to be feared.

In this advanced age of progress, civilization, and altruism, it is an anachronism to adhere longer to the fatalistic theories and practices of barbarous medieval warfare, when little thought was given to the personal health and comfort of the recruit, to prophylactic vaccination, camp sanitation, and the conservation of all resources, in the midst of the universal waste and insanity of a nation in the wild struggle for supremacy. But even the developers of the greatest fighting machine of modern times, the proverbially thorough German military caste, seem, so far, to have overlooked this essential item,¹ of the individual welfare of the soldier immediately after he has been put out of action. Our own beneficent Government should therefore be the first to establish this innovation, and so set a glorious example of humanity to the warring nations of the old world.

The item of expense in introducing such a novel system into the army would be a matter deserving little consideration, as any large pharmaceutical house would manufacture these tablets, and deliver them in appropriate containers ready for immediate use, at an approximate estimate of the value of a postage stamp for each outfit.

If, after giving due consideration to this presentation of the subject, the advantages of such a system of universal self medication for the disabled and helpless trooper, seem to outnumber and outweigh the objections, it would seem incumbent on those officials who control such affairs in the Government and army, to take prompt measures to introduce this improvement, for the benefit of the rank and file of the national fighting force. There should be no ground for hesitation in the fear lest occasional, and comparatively trivial harm might be done to himself, by a careless individual self doser, when we contrast the vast number who would be benefited. The main consideration in National affairs is always, "the greatest good to the greatest number."

¹Medical officers will no doubt support any reasonable measure for the relief of pain on the battlefield, and we are glad that Doctor Seelye has so well attended to this idea of abolishing or mitigating the suffering of war. The plan has been so far regarded as not practicable however; we learn, for instance, from Köhler, *Die Organisation des Feldsanitätsdienstes*, *Med. Klinik*, September 6, 1914, that Professor Schleich's mixture for self narcosis on the battlefield is difficult to get into any sort of working order. [Eps.]

THE RELATION OF DISEASES OF THE NOSE AND THROAT TO THE GENERAL PRACTICE OF MEDICINE.*

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The importance and value of a thorough acquaintance with the principles and practice of general medicine to the specialist in any department of medical science cannot be overestimated. This truth applies with special force to the laryngologist and rhinologist, because there are numerous diseases affecting the different parts of the complex physical organism which produce reflex effects and prominent symptoms in the nose and throat. To show the great advantage to the general practitioner of a knowledge of pathological conditions of the nose and throat, it can only be necessary to direct attention to the immense importance of a healthy condition of the upper respiratory apparatus to the oxygenation of the blood and the nourishment of all the organs and tissues of the body. All the organs of the body are united to each other by means of the bloodvessels, the lymphatics, and the general nervous system, so that infectious material can be conveyed through the blood and lymph channels from one organ to another, or sensations of pain may be transmitted from one part of the body to another. Things are not always what they seem. Pain in the knee may indicate disease of the hip joint; a burning sensation in the throat may be due to uterine trouble; a pulsating uvula may point to disease of the heart, and, according to H. Barwell (1), "a sharp pain in the throat, shooting to the ear on swallowing, or even on speaking, without any serious visible lesion, is very suggestive of a gouty affection."

R. Levy (2) says "clinical evidence points strongly to the fact that diseases of the lungs and heart occur in connection with affections of the respiratory tract as complications and also as sequels of such affections. Other clinical evidence points to affections of the upper respiratory tract occurring as complications and sequels to diseases of the heart and lungs. There appears to be a marked correlation which it is difficult to analyze and which scientific investigation has not as yet satisfactorily explained." He also states that he has seen a case of septic endocarditis follow tonsillitis.

We know that there are many skin diseases which produce striking and varied symptoms within the nose and throat. In association with measles, scarletina, and typhoid fever, we have such affections as coryza, laryngitis, and bronchitis. W. A. Wells (3) mentions "herpes, pemphigus, lupus, rhinoscleroma, erysipelas, and lichen ruber planus as skin affections, so often accompanied by lesions in the mucous membrane of the nose and throat that they have to be considered in textbooks on diseases affecting these parts." He quotes Hajek, of Vienna, who gave it as his opinion, "that unless one had devoted a cer-

*Read before the Philadelphia Laryngological Society, January 5, 1915.

tain amount of attention to dermatology he was not competent to intelligently diagnosticate the diseases of the nose and throat."

Asthma is often found in association with some disease of the nose, such as ethmoiditis or hypertrophic rhinitis. Septal deflections and nasal polypi are often regarded as causes of asthma. Indigestion is a common and troublesome disease, which may be due to many causes, but a very frequent cause is the swallowing of infected secretions from the nose, in such affections as atrophic rhinitis and sinusitis. The crusts and pus which accumulate in the nose and throat in these conditions are often swallowed by the patient and interfere with the processes of digestion to such an extent as to set up a state of chronic dyspepsia. Anemia is a condition of the blood in which there is a deficiency of red blood corpuscles. This condition causes paleness of the skin and a general lack of bodily nutrition. It may be caused by lack of sufficient food, or may be due to various other causes. Anything that interferes with nasal respiration would tend to bring about this condition by preventing the proper oxygenation of the blood. One of the most frequent causes of anemia among children is the blocking up of the nasal passages by adenoid growths in the postnasal chamber. Children who have much adenoid tissue are nearly always mouth breathers. They cannot inhale sufficient air thoroughly to inflate the lungs, and the blood does not receive the necessary amount of oxygen to nourish the tissues. While there is lack of oxygen in the blood, there is an excess of carbonic acid, and this produces headache, drowsiness, languor, nervousness, and general irritability.

Deafness is a frequent accompaniment of adenoid growths. That the deafness is caused by the adenoids there can be no doubt. I have had cases in which the hearing was improved immediately upon the removal of the adenoid. And in most of the cases the improvement of health, hearing, and general intelligence which follows the operation, within a remarkably short space of time, is truly astonishing. The dull heavy look disappears from the eyes, the vacant expression of the countenance is replaced by a look of interest and alertness; and the boy who was a dullard at school and a laggard on the street is now full of animation, enthusiasm, and vim. A mother, speaking to me of the great change in her boy following a tonsil and adenoid operation, said, "before the operation he had no interest in learning, now he loves to go to school. He could not play like other children. When his companions would start to run, he could not keep up with them: he would have to stop to take breath and that made him cross and disagreeable. But now he is full of vitality, as active as a cricket, and when he comes home from school, he rushes in like a whirlwind."

Others have witnessed similar transformations after these operations. F. R. Packard (4) reports "the case of a boy aged nine years, who was brought to him with a history of having been a mouth breather from infancy. His mother stated that, though attending school regularly, he had never been able to learn to read or write and had remained in the same grade for several years. Examination revealed an enormous adenoid mass descending below the level of the soft palate and almost com-

pletely occluding the nares. The mass was removed, and some months later the mother reported that the child had made most amazing advances in his studies and was graded in the school with other children of his age."

Among the most common things for which medical aid is sought, are coughs and headaches. For these ailments druggists and patent medicine proprietors have always on hand a multitude of syrups, powders, tablets, and "sure cures" of various kinds, warranted to rid the patient of these disorders. But, somehow, their sure cures fail in very many cases and even add to the distress of their victims by making the condition worse. The only scientific procedure is to seek out the cause, and, by the removal of the cause, cure the condition.

Coughs may arise from many causes, such as croup, asthma, bronchitis, pneumonia, and pulmonary phthisis. But there are other causes of cough, some of which are not quite so well known to the average general practitioner. A persistent, hacking cough, that will not yield to ordinary medical treatment, may be due to a discharge of pus from one of the nasal sinuses into the postnasal chamber, or to a hypertrophy of the lingual tonsil, or to an elongated uvula.

I heard a prominent rhinologist, when addressing a class of postgraduate students, relate a case of cough which had been referred to him by another physician, in which medicines had failed to give relief and the cause of the cough had not been discovered. A peculiar circumstance in connection with the case was, that the cough always came on at three o'clock in the morning and was so severe that the patient could get relief only by leaving his bed and sitting in a chair. The cause was found to be a chronic maxillary sinusitis. During the day, when the patient was sitting or standing, the pus was retained within the antrum, but when he assumed the recumbent posture on going to bed, the pus began to discharge and gradually found its way into the postnasal space, descending lower and lower on the wall of the pharynx, until, by three o'clock in the morning, it set up such an irritation in the throat as to occasion a paroxysm of coughing. The case was cured by treatment of the infected sinus. Since then I have had two cases in my own practice, similar in all respects, except that the patients did not wake up at any particular time.

Hypertrophy of the lingual tonsil may cause a huskiness of the voice and a dry, hacking cough which is usually worse when the patient lies down at night. I have had several such cases, where no other cause for the irritation in the throat could be discovered; and by the use of astringent applications, or by means of the curette, the snare, or the Myles lingual tonsillotome, I was enabled to remove the redundant tissue and cure the cough in every case.

Among my tuberculous patients, I have met with a number of cases, in the incipient stage, in which the severity of the cough seemed to be out of all proportion to what one would usually expect from the conditions existing within the chest. Such patients always complain of a tickling in the throat. In such cases I have generally found that the cough

was either caused or greatly aggravated by the existence of a postnasal catarrh, a hypertrophied lingual tonsil, or an elongated uvula. By suitable treatment directed to these conditions, the distress occasioned by the cough has been very much alleviated and in some cases cured.

Another cause of cough, and one that is pretty generally overlooked, is an irritation in the external canal, due to the presence of cerumen or some foreign body in the ear. Headache is another frequent and distressing ailment. Headache is a symptom and never a disease. I wish that this fact might be brought to the attention of the laity much more frequently and with far greater emphasis than at present. For if this matter were properly understood by the people at large, dangerous headache powders, and similar preparations would be much less in demand.

Headache may be due to indigestion, constipation, kidney disease, eye strain, anemia, nervous exhaustion, mental worry, neuralgia, rheumatism, insomnia, valvular heart disease, or brain tumor. It may also be the warning cry announcing the onset of an exhausting and contagious disease such as typhoid fever. Some of the obscure and less understood causes of headache are inflammations of the nasal accessory sinuses and pressure within the nasal cavity. The following is one of many cases—all belonging to the same class—headache due to pressure within the nose, which it has been my pleasure to treat:

CASE I. M. P., woman, aged thirty-seven years, came to me two years ago, complaining of headache. She stated that six years previously she had a severe attack of grippe, which was followed by an acute inflammation and suppuration of the frontal sinus. From that time she had been troubled with almost constant headache, which was made worse by a heated atmosphere, especially when she entered a crowded room or traveled in a crowded street car. The pain was in and around the eyeballs and over the eyebrows. Examination showed the middle and inferior turbinates enlarged and both middle turbinates pressing on the septum. I removed the middle turbinate on the right side and the operation was followed by relief from pain on that side, the pain on the left side still persisting. A little later, I removed the middle turbinate on the left side, after which the patient enjoyed entire and permanent relief from a headache which had persisted for six years and which medical treatment had failed to relieve.

R. H. Skillern (5) states that many cases arising from the same causes have often gone unrecognized. He also quotes Hajek, to the following effect: "Many cases of sinus disease with slight nasal symptoms go through their entire life with the diagnosis of chronic headache, taking all manner of cures, such as electrotherapy and hydrotherapy, sea baths, general and special (body) massage, without it ever occurring to any one that the headache might be caused by a structural disease in the immediate neighborhood (accessory sinuses of the nose)." Another most interesting case was one in which the leading and most distressing symptoms were headache and cough:

CASE II. C. G., man, aged twenty-six years, came to me complaining of a troublesome cough and a persistent headache, both of which had existed for two or three years. He had been treated by several doctors, but medicines had failed to cure the condition or even to give relief. The cough always came on in the morning as soon as he got out of bed and lasted sometimes for an hour or more before he could get any relief by the ejection of the

troublesome irritant which had collected in the throat. After that he would have relief for some hours, and then the dry, hacking cough would recommence and be continuous throughout the day. This had continued for so long a time and all suggested remedies had proved so valueless that he began to entertain the thought that the cough was the beginning of a tuberculous process and that the seat of the trouble was probably in the lungs. With this idea in his mind he consulted a specialist, who, after a thorough examination assured him that his lungs were perfectly sound and that the whole trouble was in the throat and nose, and that he had some nasal obstruction which needed to be removed. It was this diagnosis which led him to consult me. On examination, I found a thick, stringy, and tenacious secretion on the pharyngeal wall, which was not easily removed. When loosened up it would form a sort of white cord which would stretch like elastic and not break, and seemed to be attached somewhere up in the postnasal chamber. This secretion continued to form for a good while after treatments were commenced and always had the same characteristics. The character of this secretion, together with the headache of which he complained, led me to suspect a chronic pus discharge from one of the sinuses. On examining the nose, I found the septum very badly deflected; a large concavity on the left side and a corresponding convexity on the right side, which almost entirely occluded the right nostril and rendered it quite impossible to make any extended exploration on that side of the nose. My first work, therefore, was to remove the obstruction. I did a submucous resection for the straightening of the deflected septum, and this procedure greatly improved nasal respiration, but seemed to have very little effect upon the headache and no effect whatever upon the cough. One remarkable peculiarity of the headache was its periodicity. The patient declared that the pain in the head began in a morning at ten o'clock precisely, lasted for two hours, and then disappeared until the following morning at the same time, when it was sure to return. The pain was very intense and distressing while it lasted. As soon as it was practicable to make a thorough examination of the right side of the nose, I discovered pus beneath the anterior third of the middle turbinate, which, when removed would very speedily reappear. This I regarded as a diagnostic sign of a suppurative process in the right frontal sinus. I tried to secure free drainage from the sinus without further operative procedure, but in this I was only partially successful. The discharge became much greater than it had been, and the patient was able to blow the secretions from the nose during the day, in doing which he soiled several handkerchiefs daily. The nose was thoroughly cleansed at every treatment, and a warm, antiseptic wash was freely used by the patient morning and night. By these means the pus was prevented from getting into the nasopharynx; the thick, stringy, disgusting secretion which so persistently manifested itself on the pharyngeal wall and which was the sole cause of the cough, now disappeared, the cough took its departure, and was heard no more.

As the headache, however, still persisted and with but slight improvement, I found it necessary to remove the anterior portion of the middle turbinate in order to provide a freer outlet for the pus. After this operation the intensity of the headache was considerably relieved. But it still continued its visits, morning by morning, with annoying regularity and punctuality for several weeks longer, but gradually becoming less and less severe until it ultimately ceased to be troublesome. Another annoying symptom in this case was an offensive odor from the nose. This ozena was not noticed until after the partial removal of the turbinate, when there was a freer discharge of the pus. Even this cleared up. Just one year after treatment was commenced, there was still some slight discharge, but it had ceased to distress the patient, and all the more serious symptoms had entirely disappeared.

That there is a distinct relation between the tonsils and many general diseases, is a fact that few will be disposed to question. Microorganisms of various kinds enter the crypts of the tonsils and set up infections which greatly reduce the bodily vitality and lessen the power of individual resistance to disease. There is reason to believe that tonsillitis is frequent-

ly the cause of rheumatism. Acute Bright's disease is a frequent sequel of tonsillitis.

H. H. M. Lyle (6) states "that Poncet and his pupils of the Lyons school hold that tuberculosis is a very common cause of rheumatism, advancing bacteriological, pathological, and clinical proofs." There is a general agreement among authors that the tonsils play a very important part in the tuberculous infection. Tonsils and adenoids, after removal, are frequently found to contain tubercle bacilli. The glands of the neck also, which become enlarged in adenoid and tonsillar cases, are often found to contain the germ of tuberculosis. It is impossible to state with certainty whether a tonsil is tuberculous or not until it is examined after operation and sometimes not even then. About two years ago, a case was referred to me of a young man who had been under treatment for tuberculosis several months at the State sanatorium. It was regarded as an arrested case. There was no active lesion in the lungs, and the tubercle bacilli had disappeared from the sputum. He was gaining in weight and feeling fine in all respects, but his temperature continued above normal in spite of all that could be done. On examination I found that he had but one tonsil and that was quite small. But on its surface I discovered a small, white speck about the size of a pin's head. At this point I was able to introduce a fine probe, for a short distance, into the body of the tonsil. As I could find nothing else to account for the fever, I concluded that the trouble must be in that tonsil. I removed the tonsil in its entirety and sent it to the laboratory for examination. The pathologist failed to find the tubercle bacillus, but, the day after the operation the man's temperature came down to normal and remained at that point as long as I had him under observation. So far as I know there has been no recurrence of the fever.

Tuberculosis of the larynx may develop at any age and is much more common in males than in females. The age of greatest susceptibility is between twenty and forty years. It may be a primary affection, but is usually secondary to tuberculous lesions in the lungs. The parts of the larynx most frequently affected are the vocal cords, the posterior wall, and the arytenoid cartilages, though any and every part of the larynx may become involved in the ulceration process. The most frequent sight of the ulceration is the true vocal cords, though ulcers frequently appear on the epiglottis, the false cords, and in other regions.

Another disease which presents marked pathological changes in the nose and throat is syphilis. St. Clair Thomson (7) says "a doubtful case of syphilis may be absolutely settled by a look into the nose or throat." The initial lesion may appear as a chancre on the tonsil, or may manifest itself in the nose, the infection having been carried there by the finger nail used in scratching the septum or removing crusts from the nostril. In the secondary stage, mucous patches are frequently seen on the mucous membranes of the mouth or on the side of the tongue. In the tertiary stage there may be a pronounced laryngitis and pharyngitis, together with other characteristic symptoms and appearances. Syphilis of the larynx and tuberculosis of that organ have so many points of resemblance that the one dis-

ease has often been mistaken for the other. In the differential diagnosis, it is important to remember the following points: The site of the early lesions; in tuberculosis in the posterior portion of the larynx, in syphilis in the anterior portion. The quality of the voice; in tuberculosis weak and whispering, in syphilis loud and strong, but hoarse. The character of the expectoration; in tuberculosis more profuse than in syphilis. The appearance of the ulcers; in tuberculosis pale and covered with secretion, in syphilis deep, with punched out appearance and very little secretion, an inflamed margin surrounding the ulcer. The growth of the ulcers; in tuberculosis slow, in syphilis very rapid. The pain in advanced cases of tuberculosis is much greater than in syphilis. The cough is more troublesome and characteristic in tuberculosis than in syphilis. Aphonia is quite common in tuberculosis and rare in syphilis. In considering the matter of loss of voice it should always be borne in mind that enlarged glands of the neck, or an aneurysm at the arch of the aorta may interfere with the nerve supply of the larynx and cause paralysis of the vocal cords.

Tuberculosis of the larynx is always a serious condition, in pregnant women it is fatal; in other cases the prognosis depends upon many things, but mainly upon the stage of the disease, the extent of the pulmonary involvement, and the power of resistance on the part of the patient. Most cases can be improved, some can be cured, all can be relieved by treatment.

The results which are being obtained by State sanatoriums and dispensaries in the treatment of tuberculous patients, are very gratifying and lead us to hope for and expect far greater things in the near future. The most encouraging sign of the times, to my mind, is the changed attitude of the public mind toward this whole question of tuberculosis. A few years ago nearly everybody believed that tuberculosis was a fatal disease. A diagnosis of consumption was looked upon as equivalent to a sentence of death, and it required some courage on the part of the physician to tell his patient what the trouble really was. If he called it consumption, it frequently meant the loss of his patient, who would rush off to find another doctor who, while treating the case as one of consumption, would call it by some other name: "a severe cold and cough," or "a congestion of the lungs," or "bronchitis," or "a run down condition," or "general debility," or anything else under the sun, save the dreaded word, consumption. Now, all that is changed. The people believe that tuberculosis is a curable disease, if it is taken in hand in the incipient stage. When they are troubled with a cough and find themselves losing weight and strength, they are not only willing but, in most cases, eager to be examined and, if necessary, treated, in the hope of a cure. This cooperation on the part of the people is helpful and greatly encouraging. After years of experience in the daily treatment of tuberculous patients, however, I have come to the conclusion that for the stamping out of this terrible disease we shall have to depend mainly upon preventive measures. Look after the children; improve their hygienic surroundings; see that they have plenty of fresh air and suitable food. Remove all diseased or hypertrophied tonsils and all adenoids

or other obstructions to free nasal respiration. Make the respiratory apparatus as perfect as possible. In every doubtful case seek consultation and advice. Not only tuberculous cases, but numerous other cases which come from time to time to the specialist and to the general practitioner alike, present difficult and perplexing symptoms or complications, and when the etiology is obscure and the diagnosis doubtful, there should be mutual consultation and mutual cooperation between physicians operating in the different branches of medicine, so that doubts may be solved, difficulties removed, and the best possible results obtained.

The two following cases show the great advantage of such a course to all the parties concerned. F. E. Waxham (8) tells of "a prominent physician in Chicago, who rapidly failed in health, was practically incapacitated for work and, by many, was supposed to be afflicted with a fatal illness. He manifested many of the symptoms of locomotor ataxia. The condition was found to be due to sphenoidal disease. By opening and curetting the sphenoidal sinus and letting out the pus, all the symptoms abated and he obtained permanent relief."

Holden (9) reports the case of a woman in apparently robust health, who came to his office saying, "I am come to show you the worst throat you ever saw." She described persistent, agonizing pains in the throat which she had experienced for more than a year and which no treatment seemed to reach. Thorough examination of throat, nose, and larynx failed to show any sign of disease. She had no symptoms of disorder of the stomach, liver, bowels, or kidneys. But she had a profuse leucorrhea of uterine origin, and the cure of the leucorrhea completely cured the pharyngeal pain.

The moral of all that I have written is this: In all diseases of obscure origin with puzzling symptoms, make careful examination of the nose and throat. In all disturbances of the nose and throat, with no local conditions to account for the symptoms, seek the cause elsewhere; in the heart, stomach, kidneys, nervous system, anywhere, and seek until you find. There must be an explanation somewhere. There is no effect without an adequate cause. Seek diligently for the cause and when you have found it, if possible, remove it, and when the cause is removed the effect will cease.

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738 SOUTH FIFTY-THIRD STREET.

Ocular Anaphylaxis.—Mark J. Schoenberg, in *New York State Journal of Medicine* for November, 1914, found that it was possible in rabbits to induce a local anaphylaxis in the eye, after intravenous sensitization, by the subsequent injection of the homologous serum into the anterior chamber. The same result was obtained when tuberculin B. E., was injected intravenously or subcutaneously and the eye later injected with the tuberculin.

LIFE INSURANCE AND LABORATORY EXAMINATION.*

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The importance of the laboratory man to medicine is too well established to need further discussion. That practically all of the advanced methods for diagnosis have emanated from the laboratory is conceded. The scientific aspect of modern therapeutics is based upon the research work of the laboratory man and much of what we know in the lines of diagnosis and prognosis is based upon facts elaborated by him. While this then is true of the laboratory man and his relation to general medicine, we find that life insurance has to a great extent failed to avail itself of the services and research work of the laboratory man and still adheres to the methods in vogue fifteen or twenty years ago.

As far back as 1905, Dr. Edwin Welles Dwight, medical director of a large life insurance company, in his annual address, brought out the important question as to who should examine the urine of an applicant for life insurance and unhesitatingly decided in favor of the expert.

Life insurance examination, for all practical purposes, may be divided under two heads: Physical examination and the laboratory examination. As it stands at present, it is mainly physical and very little laboratory. The laboratory equipment of even those companies which maintain a home laboratory is generally inadequate. At least I am compelled to judge so from an experience I had recently. Having an opportunity to visit one of the biggest life insurance companies in this city, if not in this country, at their home office I was shown into the "laboratory." The equipment of the room consisted of a wash stand and a small stand (shelf) holding a Bunsen burner, six test tubes, a very minute urinometer, three sedimentation glasses and four bottles, unlabeled, evidently containing test solutions, one of which looked like Haines's solution and another like nitric acid, while the contents of the other two bottles I could not determine by smell or appearance. There was not a centrifuge nor a microscope in sight.

The object of the laboratory examination, presumably, is to detect those lesions which cannot readily be discovered by means of inspection, mensuration, palpation, percussion, and auscultation. To accomplish this we should call to our aid all those modern appliances and tests which the research worker has put at our disposal. Briefly speaking, these are: Examination of sputum, urine, gastric contents, feces, and blood. Some of these may be eliminated, as either not furnishing sufficient data generally to be of use, or because they are associated with so much discomfort to the applicant as to become unavailable. Among these we may place the examination of feces and gastric contents. There seems to be no valid reason, however, why a thorough analysis of sputum, urine, and blood should not be made in every case of an applicant

*Read at the annual meeting of the Association of Royal Arcanum Medical Examiners, New York, November 28, 1914.

for insurance to the amount of \$5,000 or over. Assuming that only one case in a thousand would be rejected on the score of such thorough analysis, the company or organization would still be the winner, even though added expense was incurred by reason of such routine examinations. Much can be learned that is of value both to the insured and the insurer, and by correlation of physical and laboratory findings many a doubtful and eventually expensive risk could be avoided.

Taking up the examination of sputum first, we can dismiss it with a few words. A thorough search for tubercle bacilli, both in plain smear and by the antiformin method, should always be made. While it is true that a careful examiner may by auscultation and percussion readily discern the initial lesion, and while it is equally true that many cases of early phthisis do not show the tubercle

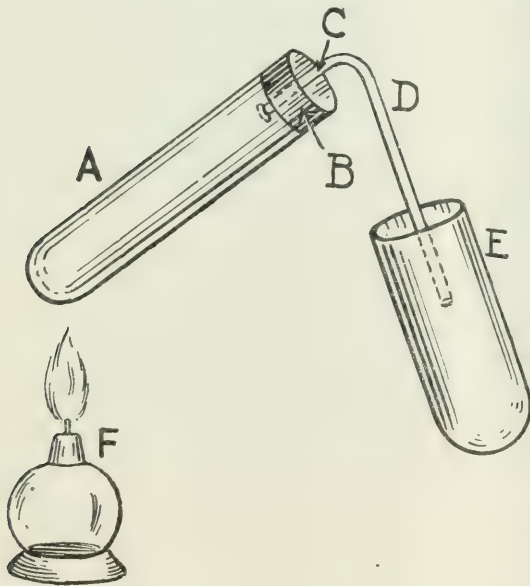


FIG.—Diner's improvised apparatus for distilling off acetone from urine. (For directions, see text.)

bacilli in the sputum, yet one method should supplement the other to the end that no doubtful case may gain admission. We must realize that the less the amount paid out by the insurance company for death claims, the correspondingly less will be the insurance rates, thus bringing insurance more and more within the reach of everybody. Therefore the more certainly we can exclude undesirable risks, the better for the desirable ones and for the insurance companies.

Next in importance, from the laboratory point of view, is the uranalysis. A superficial uranalysis made by the poorly trained (in laboratory technic) general practitioner is worse than valueless. The examination should be carried out by one who not only can apply the tests, but who can apply them and interpret the results intelligently—that is a trained laboratory man who has sufficient bedside experience.

Chief among the things looked for in the routine uranalysis are albumin, sugar, and casts. But we must not overlook the fact that in the urine substances may be present which, while rarely looked for, yet are of great diagnostic importance, frequently of far greater importance than those named.

Among the pathological urinary constituents of such importance I should place acetone, diacetic acid, indican, and some of the microscopical findings. Before touching on these, let us first consider the substances generally looked for and the tests applied. Uranalysis being the one thing on which all companies and organizations insist, we must ask ourselves, When should the specimen be collected? Those having considerable experience in the examination of urine, will tell you that the only conclusive analysis is that based on a twenty-four hour specimen. Since, however, it is essential that the specimen be collected under the supervision of the examiner or an officer of the insurer, it becomes at once obvious that a twenty-four hour specimen is out of the question. Being then of necessity compelled to rely on a single specimen, I unhesitatingly declare myself in favor of the evening specimen, or rather of the specimen collected at the end of the candidate's working period.

The substances examined for are generally, as mentioned before, beside the specific gravity, reaction, color, etc., albumin, and sugar. Rarely indican, and still more rarely microscopical examination is insisted on.

ALBUMIN.

Many albuminous bodies may be met with in the urine: Peptones, or albumoses; Bence-Jones albumin; nuclealbumin; histones; hemoglobin; globulins; and last, but not least, serum albumin. From the point of view of insurance we are concerned only with serum albumin. The question is often brought up, When and in what amounts does the presence of serum albumin in the urine become of pathological significance? We know, and we have many good authorities for this statement, that under certain conditions serum albumin may be found in the urine of an otherwise normal person. Conditions under which so called "physiological albuminuria" may appear are, after severe muscular exercise, severe emotions, mental labor, menstruation, digestion, cold baths, etc. (1). Yet so good an authority as Osler states (2): ". . . without entering into the question of albuminuria, it may be said that these transitory albuminurias must have a meaning; albumin has its place and its place is not in the urine." Again (3), "Diseased kidneys may allow passage to the normal proteins of the blood . . . hence albuminuria comes to be one of the most important of the signs of renal disorder." Further on he states (4) ". . . and although there are grounds for believing that minute quantities of these substances (albumins) find their way even into normal urine, and that, occasionally, amounts appreciable by ordinary clinical tests pass through kidneys which are not seriously abnormal, in the conditions included under the name of functional albuminuria, the fact remains that the continuous excretion of appreciable quantities of albumin usually denotes renal disease, either primary or secondary to circulatory disturbances." Much of the emphasis in the last statement must be laid on the tests employed for the detection of "appreciable quantities" of albumin. With extremely delicate reagents, such as trichloroacetic acid or sulphosalicylic acid, or the even more delicate ninhydrin, protein reaction may be obtained

in almost every urine. The best test available for the detection of appreciable quantities of albumin (this term is hereafter used to denote serum albumin) is the nitric acid (Heller) ring test or the heat and acetic acid test. The technic of carrying out these tests is very simple, but two things must be borne in mind. The urine must be perfectly clear, rendered so, if necessary, by repeated filtration and the use of talcum powder, and secondly, the albumin ring with the nitric acid test often develops only after standing for some time. The nitric acid having been carefully deposited in the bottom of the dry test tube by means of a pipette, a sufficient amount of the clear urine is allowed to flow from the filtering funnel down the inclined sides of the test tube, so as to form a distinct layer on top of the acid. The line of contact is observed immediately and again after fifteen to thirty minutes, if at first negative. It must be also remembered that a milky ring only, appearing at the line of contact, is indicative of albumin. Often a color line, ranging from pale yellow to deep mahogany, appears. This is due to pigments and is not considered of special pathological significance, excepting, however, that the appearance of a distinct green ring, often showing above the green the spectroscopic colors, is indicative of bile pigments.

In carrying out the heat acetic acid test, we proceed as follows: A rather narrow test tube is filled with clear urine nearly to the top. The upper quarter of the urine is gently heated in the flame. If the heated portion becomes cloudy, it indicates one of three possibilities: The clouding may be due to carbonates, phosphates, or albumin. To differentiate we now add a few drops of two per cent. acetic acid and note the effect. If the cloudiness disappears with the evolution of carbon dioxide, it was due to carbonates; if it disappears without the evolution of gas, it was due to phosphates; and if it remains or even increases on the addition of the acid, then we are dealing with appreciable amounts of albumin.

SUGAR.

It is a great fallacy to assume that sugar in the urine invariably means diabetes. Just as much as appreciable amounts of albumin in the urine practically without exception mean renal involvement, a pathological condition, just as little is sugar in the urine indicative of any pathological lesion. Emerson (5) states: "A small amount of carbohydrates is a normal ingredient of the urine. Three have been demonstrated—glucose, animal gum, and isomaltose. Related bodies are also present—the paired glycuronic acid compounds, nucleinic acid, mucoid of the nubecula, and sometimes pentose. The total output of the carbohydrates measured as glucose amounts to from two to 2.23 grams in twenty-four hours." It is well to remember also that some people have a lesser carbohydrate tolerance than others, and it has been proved that the ingestion of so small an amount as fifty grams of glucose taken on an empty stomach may be followed by a transitory glycosuria. Numerous authors could be quoted to this effect. It behooves the examiner, therefore, carefully to differentiate the purely functional glycosuria from the pathological glycosuria. Of far greater import than glycosuria is glycemia,

and modern investigators lay far more stress on the sugar content of the blood than on that of the urine.

I need not dwell long on the fact that glycosuria and diabetes are not synonymous, and that sugar in the urine should not, in itself, cause the rejection of an otherwise desirable risk. As to the tests for sugar, I find the old Fehling's test for qualitative analysis as good as any, provided, however, that ordinary precautions are employed, such as elimination of albumin, dilution of the test solution with pure distilled water, etc. Inexperienced examiners often take a precipitate of phosphates or the emerald green coloration due to glycuronic acid as an evidence of glucose.

This about winds up the ordinary laboratory tests applied to a prospective insurance risk. Out of twenty replies received by me in response to inquiries sent out to a number of insurance companies, I have tabulated the following:

Total number of replies	20
Those maintaining a laboratory of their own....	19— 95%
Uranalysis made by the examining physician....	20—100%
Negative findings checked at home laboratory..	2— 10%
Positive findings checked at home laboratory....	18— 90%
Those examining body fluids other than urine (blood)	1— 5%
Those examining for albumin	20—100%
Those examining for sugar	20—100%
Those examining for acetone and diacetic acid.	1— 5%
Those examining for indican	2— 10%
Microscopical examination done as routine.....	1— 5%
Microscopical examination done "when indicated"	4— 20%
Those considering cylindroids as important....	2— 10%
Those examining blood pressure	18— 90%

It would of course be of interest to learn who, and how carefully, makes those few microscopical examinations which are admitted as part of the routine analysis and "when indicated," but these data are not obtainable.

It is principally of the substances other than albumin and sugar that I now wish to speak. In the foregoing list we find that only one company examines for acetone and diacetic acid. Now it is a well known fact that in cases of true diabetes mellitus a total cessation of glycosuria may be brought about, either by medication or by complete suspension of carbohydrate foods, especially the latter. However, whenever such withdrawal of carbohydrates is resorted to, Nature endeavors to compensate for the insufficient number of readily oxidizable food calories introduced by utilizing the storage fat first and the tissue protein later. And Nature, ever watchful against our ignorant interference, sends out a warning signal to the attending physician, which, alas! he too often overlooks. When the body fat becomes oxidized, it forms—by a process too complicated for this discussion—certain acids generally known as oxybutyric acids, which in turn by further oxidation are converted into diacetic acid and acetone. Now the finding of diacetic acid and acetone in the urine of a patient or a candidate for life insurance is, to my mind at least, of more importance than the finding of sugar, yet in the average life insurance examination it is not even thought of. Perhaps the rather unfamiliar names and the elaborate tests described in most of the textbooks have frightened the examiner to such an extent that he fears to undertake these "complicated

tests." Let me show you how readily the tests for acetone and diacetic acid can be performed.

ACETONE.

Preferably the acetone should be distilled off and this can readily be done by improvising the apparatus shown in the figure. Take an ordinary test tube (A) and fit it with a cork (B) having a perforation in the centre (C). Through this perforation pass a bent glass tube (D) which finds an outlet in another test tube (E). Put urine into test tube A, and by means of alcohol flame or Bunsen burner (F), heat until about one sixth of the fluid has passed over into test tube E by distillation. This distillate may now be tested or, if for some reason distillation should not be possible, fairly accurate results may now be obtained by applying the test to the undistilled urine.

In the urine (or distillate) place a small crystal of sodium nitroprusside. To this add a few drops of glacial acetic acid, about one drop of acid for each c. c. of urine or distillate. Agitate for a few minutes and then overlay with strong ammonia water so as to form a distinct layer. In the presence of acetone there will be seen at the line of contact a purplish ring, gradually deepening both in extent and in color. How important this test is can be deduced from the following case. For the past eight years I have examined the urine of a diabetic at more or less regular intervals. Every once in a while his urine is entirely free from sugar owing to temporary complete exclusion of carbohydrates from his diet by the order of the attending physician. But most of the time, when no sugar is found in this patient's urine, I have been able to demonstrate acetone, which in its turn promptly disappears under carbohydrate ingestion.

DIACETIC ACID.

This can be demonstrated by adding to recently voided urine a few c. c. of ten per cent. solution ferric chloride. At first a heavy precipitate is formed and the iron solution should be added until no more precipitate comes down. This is then filtered, and to the filtrate more of the iron solution is added. In the presence of diacetic acid a Burgundy wine color appears. However, this color may be due to salicylates present in the urine as a result of medication; to differentiate, we take another portion of the urine and boil it for five to ten minutes before carrying out the test as described above. If the color reaction appears in the boiled urine also, then it is due to salicylates, since the diacetic acid is decomposed on heating and will not give the characteristic reaction.

INDICAN.

Much has been said of late about the relation of intestinal putrefaction to stasis, autointoxication, etc. I will not now enter into the merits of the different views. All are agreed that excessive intestinal putrefaction is not conducive to good health and all are equally agreed that the extent to which indican is found in the urine is a fair measure of the degree of intestinal putrefaction. Therefore the examination for indican in the urine certainly becomes of some importance, especially since it can be carried out without much difficulty.

To test for indican put equal parts of urine and concentrated hydrochloric acid in a test tube and add a drop or two of peroxide of hydrogen or of the ferric chloride solution used for the diacetic acid test. Let stand for about five minutes, then add a few c. c. of chloroform, invert the tube three or four times and note the depth of coloration of the chloroform, which is a fairly accurate indicator of the amount of indican present.

Thus far the chemical tests. In the statistics quoted previously only one company appears to make a microscopical examination irrespective of chemical findings. To illustrate how important the microscopical examination may be, permit me to cite a case. The urine showed a specific gravity of 1016. Albumin could not be discovered by the ordinary chemical tests, though a faint trace was indicated by the trichloroacetic acid test. Yet the microscopical picture showed an abundance of casts of all varieties, among them several waxy casts. The case was one of chronic interstitial nephritis.

A few epithelial cells in the male and even fairly numerous epithelial cells, especially of the squamous variety, in the female, are not necessarily indicative of pathological conditions. But I should hate to recommend as a good risk, an applicant whose urine shows numerous renal cells. The same holds good of white blood corpuscles. A few may not be of any significance, yet a considerable number of them found on microscopical examination will certainly serve as a warning signal to the examiner. Many pathologists do not ascribe any great significance to cylindroids. To my mind, based on examination of thousands of specimens, they are practically always significant of renal involvement and should induce further investigation of the applicant's health.

Of other body fluids to be examined, I consider the blood next in importance. Careful differential count may enable one to discover chronic conditions of serious import. In a case recently seen by me, my attention was attracted by the low hemoglobin and the numerous nucleated reds which appeared in the smeared specimen. The blood examination was made at the request of the patient because of a feeling of languor and because, being employed in a hospital, he "just wanted to know how the blood was." After these blood findings the urine was examined, with practically negative results. But an examination of the gastric contents showed a total absence of free hydrochloric acid, the presence of considerable amount of lactic acid, the absence of ferments, and microscopically the presence of sarcinae, yeast cells, Boas Oppler bacilli, etc., etc. The Röntgen picture showed extensive involvement of the posterior wall of the stomach along the lesser curvature mostly and extending to the pyloric orifice. Exploratory laparotomy showed an inoperable extensive carcinoma. Yet this case had given no clinical evidence of disease and I venture to say that this patient could, at that time, have successfully passed an examination for life insurance.

Modern serology has placed in our hands a reliable test for diagnosis of syphilis. Need any one discuss the importance of syphilitic infection and its relation to life expectancy? Yet not a single insurance company demands a Wassermann complement

deviation test from any of its applicants, no matter how high the insurance asked for may be.

In conclusion, I wish to emphasize the importance of compulsory reexamination of the insured as a prophylactic measure. Many companies through the life extension society are now giving their policy holders the benefit of free reexaminations. Compulsory reexamination would undoubtedly benefit both the insured and the insurer.

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202 WEST 107TH STREET.

Correspondence.

LETTER FROM SERVIA.

Typhus among the American surgeons.—Characteristics of the disease.—Attempts at prophylaxis.—Treatment of the victims.—Needs of the Servian hospital units.—A cry for help.

SKOPLJE, SERVIA, April 20, 1915.

In my last letter I stated that our unit lost two members in one week, one surgeon and one nurse. The other members, including myself, had relapsing typhus, and all are well, so far. This infectious disease caused by the invasion of the spirochete of Obermeier, gave us much trouble; the hospital being at one time full of it and the contagion seemed to last as long as the newly wounded came from the trenches, being not clean and with lice in their shirts and on the body, and even in their bandages applied on the field of battle. This epidemic subsided and another came, with still another in waiting.

Typhus fever or exanthematic typhus came in its acute form, infectious, febrile, and highly contagious. The invasion of this epidemic was sudden, with profound depression of the vital powers of all the patients, especially the prisoners of war, housed together in unclean places, overcrowded, unventilated, and under absolutely insanitary conditions, with a diet to which many were not accustomed. At first we blamed the prisoners of war, that they caused us to suffer from this Oriental plague. Then we thought it over, looking over their barracks and noting especially the bad supply of water, and blamed a special infecting germ, the character of which was not exactly known, but which was certainly influenced by filth and overcrowding. When the mortality in February went up to eighty per cent. at some places, when the physicians and surgeons, exhausted as they were in taking care of thousands of wounded, gave their first offerings upon the altar of humanity—we lost, here and in the vicinity, about eighty-nine of them—we had to think again, and selected a commission approved by the military authorities and the State, to find means to fight this enemy worse than bullets, grenades, shrapnel, and bombs. We found that fear was a bad physician and cleanliness the best medicine.

The hyperemia of the brain beginning abruptly with a chill, was followed by violent fever, the temperature within a few days reaching 38° to 40° R.,

according to their thermometers, or, according to ours, 104° to 105° F. The pulse was frequent and bounding, soon becoming small, weak, and rapid. We had to watch the cardiac impulse, the first sound being almost effaced in the majority of cases. Then severe headache followed and delirium, from the fifth to the seventh day. Beside the little wounds produced by the louse, we found usually on the chest of the patient, first, a coarse, red, diffused, measly eruption, with a mottling of the skin later all over the body, except the face, not disappearing on pressure. The face had a deep flush, the pupils were contracted, the eyes injected. We isolated the cases at once, disinfected our wards every day, especially the toilet rooms, covering all the beds with naphthalin and washing the bodies of the patients—all of them—with petroleum, whitewashed the rooms once a week, looking for absolute hygienic surroundings and proper nursing, watching the heart, the cutaneous hyperesthesia, muscular soreness and tenderness over the tibia, prostration, vertigo, tremor and subsultus, with constipation. At the end of the second week, if the temperature suddenly declined, we knew that a rapid betterment might be expected, if no complications followed with the heart, lungs, kidneys, bladder, parotid glands, etc. But when high temperature, frequent pulse, stupor, hiccough, and other bad nervous phenomena demonstrated themselves, a presentiment of death was sure.

The treatment was symptomatic, cold to the head—snow brought from the hills far away, ice being not available—in some cases sponging, but not full bath, with absolutely no antipyrine, phenacetine, etc. If necessary, we gave few doses of digalen, five to fifteen minims, and for the constipation enemas only, no cathartics, with disinfection of the patient's excreta. Injections of serum from immunized animals were resorted to during the first week of the disease and during the first apyretic period in recurrence, but without results. The patients had proper nutrition in convalescence and plenty of fresh air in all the wards or pavilions erected specially for the treatment of these and such cases as the commission recommended.

We, the Americans, having two units in Dzevdzclia and one here in Skoplje, were not represented on this commission of five, the members of the English mission doing the most satisfactory work and giving the necessary funds, which we did not have, being prepared for surgical work mainly, and our internists were down with typhus also. The Greek mission went home when the danger of an epidemic was obvious, as they knew that this epidemic, just like cholera, would spread on account of the unsanitary conditions of this new Servian territory, the cities without canalization, the overcrowding by refugees, prisoners of war, soldiers wounded and sick; they knew the death rate would be terrible, and it was. We advised the authorities to remove the cause and clean up, first, in the barracks of the prisoners, give them new shirts, clean underwear, socks, and shoes, and teach them personal hygiene in hygienic quarters. But poor, bleeding Servia, after three terrible conflicts, exhausted, just like her sister Montenegro, has no means, her best sons dying on the battlefield in the inhuman struggle against invaders.

We cleaned up our place—after one of our pavilions had burned down, the other day—telegraphed home for funds to Mr. J. W. Frothingham, of New York, and now purpose to build up a sanitary field hospital or barracks, clean and new for the prisoners; pavilions for contagious diseases had already been erected by our English colleagues. In this way, we hope the typhus will be checked soon, and proper arrangements made to meet the cholera. At present, the death rate being forty-five per cent., we need funds, the articles named above—shirts, underwear, socks, shoes, slippers, disinfectors, medicine (quinine sulphate, digalen, strychnine, the iodides, iodoform, cocaine, chloroform, ether, morphine, chloral, bromides, etc.), and surgical material (cotton, gauze, bandages, ligatures, silk, adhesive plaster, etc.).

This war will be long, and help is needed everywhere in Europe, suffering under this slaughter of humanity. Here your missions try their best and make the sacrifices with hard work every day, protecting themselves as much as possible and getting ready for still more critical times to come. The Servian authorities do what they can for us and are really hospitable, but sometimes they seem to lose their heads, though that is a military trait, you know, and perhaps we do not understand it thoroughly.

J. RUDIS-JICINSKY.

Therapeutic Notes.

Treatment of Ground Itch.—N. Barlow, in the *American Journal of Tropical Diseases and Preventive Medicine* for February, 1915, states that, in his experience, uncinarial dermatitis, ground itch, yields more promptly to the following salicylic solution than to iodine, potassium permanganate, or the various ointments and lotions hitherto used:

R Acidi salicylici,gr. xv (1 gram);
Alcoholis,3i (30 c. c.).
Fiat solutio.

Pledgets of cotton should be soaked in the solution and applied to the affected areas for five minutes twice daily. Cases of ground itch uncomplicated with secondary infection are relieved immediately and entirely cured in from two to four days.

Antiseptic Measures in the Treatment of Respiratory Disorders.—A. F. Plicque, in *Bulletin médical* for February 7, 1914, commends the simple inhalation, through the open mouth of the vapor from boiling water to which various antiseptic substances have been added, in cases of laryngitis, tracheitis, and bronchitis not of the capillary type. A spray, however, he considers of even greater utility because of its more marked penetrating power. The following spray formula, suggested by Grasset, is recommended:

R Fluidextracti eucalypti,3ss (2 grams);
Mentholis,gr. xv (1 gram);
Alcoholis, {
Glycerini, {aa3v (20 grams);
Aquæ sterilisatæ,3iiiss (80 grams).

M. Sig.: Fill the bowl of the spray apparatus half full with the mixture and complete the filling with boiling water.

Another method, advised by Huchard, and yielding good results in cases of respiratory infection with fever and malodorous or abundant expectoration, is to spray the following mixture into the air of the room three times daily:

R Guaiacolis,3xiiss (50 grams);
Eucalyptolis,3x (40 grams);
Phenolis,3i (30 grams);
Mentholis,5v (20 grams);
Thymolis,3iiiss (10 grams);
Olei caryophylli,mlxxx (5 grams);
Alcoholis, q. s. ad.Oii (1 litre).

M. Sig.: Two tablespoonfuls of the mixture with boiling water, to be placed in the bowl of the atomizer.

Inhalation of finely powdered drugs, e. g., iodol, guaiacol in its solid form, and insoluble calcium salts, is more effectual than a spray; the solid particles reach deeper in the bronchi than the fluid, but a method still more useful is that of intratracheal injection with a curved cannula passed through the glottis. One or two c. c. (15 to 30 minims) of a ten per cent. solution of eucalyptol may thus be injected at intervals varying from one to seven days, the quantity being gradually increased, according to tolerance, to ten or even twenty c. c. (2½ or 5 drams).

Administration of antiseptics by mouth or rectum soon causes local irritation, and the author supports Grasset in giving preference to intramuscular injections. The following formula he considers especially useful:

R Mentholis,mlxv (1 gram);
Eucalyptolis,3ss (2 grams);
Olei ricini,3iiiss (10 grams).

M. Sig.: Thirty minims (2 c. c.) to be injected four times weekly.

In fetid bronchitis, an effective measure recommended is to have the patient inspire, several times a day, air that has been passed through a bottle containing antiseptics such as turpentine water; a mixture in equal parts of tar, oil of turpentine, and peppermint water; a one in twenty solution of phenol; a similar solution with 0.5 per cent. of eucalyptol and 0.2 per cent. of thymol added; or menthol crystals. Barth has advised inhalation of oxygen. Spraying in the room the following mixture is another useful measure:

R Thymolis,3ss (2 grams);
Phenolis,3i (4 grams);
Alcoholis absoluti,3iiiss (90 grams);
Aquæ, q. s. ad.Oii (1 litre).

M. Sig.: To be sprayed in the sick room.

Subcutaneous injections of the following solution of eucalyptol are also mentioned by Plicque:

R Eucalyptolis,mlxl (2.5 grams);
Olei olivæ sterilisati, q. s. ad.3iiiss (10 c. c.).
Fiat solutio.

In pulmonary gangrene, internal use of a combination of sodium thiosulphate with eucalyptus was recommended by Lancereaux:

R Sodii thiosulphatis,3i (4 grams);
Syrupi eucalypti (10 per cent.),3v (20 grams);
Aquæ aurantii florum,3ii (8 grams);
Mucilaginis acaciæ,3i (30 grams);
Aquæ, q. s. ad.3v (150 c. c.).

M. Sig.: Tablespoonful several times daily.

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GASTROINTESTINAL HEMORRHAGE FOL- LOWING OPERATION ON THE PERI- TONEUM AND OMENTUM.

At the German Surgical Congress, April, 1899, von Eiselsberg reported seven cases of postoperative gastrointestinal hemorrhage which he attributed to resection of the omentum because this had been done in all. He submitted the hypothesis that a retrograde arterial thrombus was formed, which extended to the gastrointestinal and gastric arteries, making its way up against the blood current, from which resulted an area of necrosis and ulceration and the hemorrhage. Resection of omentum adhesions and prolonged handling of the omentum could also cause a local thrombosis likely also to produce gastrointestinal hemorrhage. In 1908, Thelemann explained enterorrhagia after removal of the appendix in the same way, by admitting that a thrombus formed in the artery of the appendix, a bit of which was carried by the circulation into the intestinal vessels, particularly the ileocolic artery, thus giving rise to an area of intestinal necrosis and ulceration.

In 1900, Friedrich and Hoffmann, having noted temporary icterus after omental resection, undertook to explain this phenomenon experimentally in the guinea pig. They ligated the omental vessels, or resected the omentum to the extent of one or two thirds of its total, and without exception this produced foci of hepatic necrosis, at times anemic, at

other times hemorrhagic. In some animals, when the ligature was near the gastrointestinal artery, several gastric ulcers developed after a variable lapse of time, which gave rise to hemorrhage. The larger the animal, the greater was the difficulty in realizing these lesions, undoubtedly because of the greater distance from the omental thrombus to the gastric vessels, and this anatomical condition may possibly explain the infrequency of the complication in man. These experiments were repeated in 1907 by Engelhardt and Neck, who, in thirty per cent. of the cases, found it impossible to produce gastric lesions.

The latter writers noted that a thrombosis of the omental veins could, itself, produce lesions of the stomach by retrograde embolus by way of the gastric veins. Wilkie, in 1911, in turn incriminated venous thrombosis of the omentum, as this lesion is readily produced by bacterial or mechanical agents, and emboli frequently become detached from the thrombosed omental veins, probably by vasodilatation and periodical contraction arising during the absorption of food. Venous emboli of the omentum may, in certain circumstances, be carried into the gastric veins and, becoming lodged in the venous plexus of the lower gastric mucosa, give rise to a gastric ulcer. Should the animal have a tendency to vomit, such emboli are produced more easily. As to the gastric lesions thus obtained, they are superficial and readily cicatrize. Thrombosis of the veins on the right side of the omentum reacts more particularly on the pylorus, duodenum, and liver.

All these experiments show that surgical interference on the omentum or peritoneal folds may produce gastric or intestinal hemorrhage, and that the loss of blood may be due to either arterial or venous lesions. Clinically, omental resection has been done in a number of instances in which this postoperative complication has occurred.

SURGERY OF THE WAR.

So far as the eastern front of the war is concerned, with the possible exception of Serbia, it may be said that little or nothing is known of surgical conditions. In France and in Belgium it would seem that the work of the medical corps has been effective. At first, the organization of the French and British army medical service was defective. The French were unprepared for war and their army medical service was wholly inadequate to the exigencies of the situation. The British Medical Service was well organized, but only large enough for its standing army and by no means for the armies of two millions or more which are either now in the field or preparing to go; a new organization had to be evolved.

Considering the exceptional circumstances, both

the French and British army medical authorities have brought order out of chaos and coped bravely with the difficulties in their path, and at the present time, judging from the somewhat meagre reports to hand, the wounded soldiers are being treated at least as well as could be hoped for.

In order to bring this result about, the services of British civilian surgeons and physicians have had to be called on, with the consequence that there is now a decided dearth of medical men in Great Britain.

As to the nature of the wounds met with at the western front, it is evident that a considerable number of them, perhaps the majority, has been due to shrapnel bullets, which make large orifices of entrance and exit, and if they strike bones make very severe fractures. All kinds of wounds, however, are encountered, and on account of the vast number of men engaged and the new conditions of warfare, the strain placed on the members of the Army Medical Corps is undoubtedly greater than in any previous campaign. Moreover, and this is a point which should be emphasized, there has been a great prevalence of sepsis. This is owing to the fact that the wounded have frequently to lie untended for hours on French soil infected with the spores of tetanus. During the past winter, "frost bite," too, has been rife in the French, British, and Belgian and doubtless in the German armies.

Up to now, literature dealing with the surgery of the war has been scant, limited chiefly to papers contributed to the medical journals of the warring nations. Later on, there will undoubtedly be let loose a flood of writings relating to the subject, of great interest and importance. There are three outstanding points with regard to the surgery of the war: First, that owing to the long range of modern artillery, no hospitals can be placed nearer the fighting line than twelve miles, and consequently that first aid attention is of the greatest importance; second, that motor transportation is, on the whole, the most efficient means of removing the wounded as quickly as possible to the base hospitals, owing to the fact that railroads may be destroyed at any time; and, third, the widespread prevalence of sepsis due to the impossibility of removing the wounded with celerity on account of the conditions under which the war is being waged and to the infected state of the soil.

MENTAL SEQUELÆ OF THE HARRISON LAW.

As was expected generally by the press, medical and other, the immediate effects of the Harrison antinarcotic law were seen in the flocking of drug habitués to hospitals and sanatoriums. Sporadic

crimes of violence were reported too, due usually to desperate efforts by addicts to obtain drugs, but occasionally to a delirious state induced by sudden withdrawal of the stimulant.

The really serious results of this legislation, however, will only appear gradually and will not always be recognized as such. These will be the failures of promising careers, the disrupting of happy families, the commission of crimes which will never be traced to their real cause, and the influx into hospitals for the mentally disordered of many who would otherwise live socially competent lives.

To understand this, we must remember that drugs, especially opium and its preparations, in the vast majority of cases represent for the individual a compromise with life, an adjustment with the scheme of things which is not to be lightly destroyed. In the life of everyone there are conflicts of desire and duty, of pleasure and reality. In some cases the instinctive demands are so much at variance with the social requirements that a normal adjustment appears impossible and the individual takes refuge in a drug habit wherein his real personality is so stupefied that he can satisfy his subconscious cravings in a world of fantasy and day dreaming. Remove this aid to adjustment, however, upon which he has leaned for many years, and he finds it necessary to harmonize himself all over again with a complex social organization. Having passed by this time the malleable period of his development, he finds himself unable to make this adjustment and his reaction will be antisocial.

We must face the fact then that the erstwhile drug habitué is not a well man when he has overcome the first fierce craving for the drug. The mental side of the picture should be studied as well as the physical, and the physician should be ready to help him to readjust himself to the world of sober reality, to sublimate his subconscious desires, and to occupy his social niche unsupported by artificial stimuli.

THE RUM RATION WRANGLE.

The columns of our staid contemporary, the *British Medical Journal*, have been enlivened for the past two months by a lively controversy, verging at times on the violent. The *casus belli* is the so called "rum ration" dealt out to the British soldiers in the trenches, and John Barleycorn's character is weighed in the balance.

The whole trouble began with the appearance of an article by Sir Victor Horsley, F. R. S., etc., in the *British Medical Journal* for January 30, 1915, entitled, On the Alleged Responsibility of the Medical Profession for the Reintroduction of the Rum Ration into the British Army. In this he scores heavily the practice of dispensing to the soldiers in the trenches

a daily ration, amounting to about two and a half ounces, of raw spirits. His arguments are that it causes immorality, loss of resistance to disease, and decreased efficiency in marksmanship. He also protests against the widespread impression furnished by the rather ambiguous wording of the military regulation covering this point, that rum is issued to a soldier only on a physician's prescription. As a matter of fact, he says, spirits are furnished to 250,000 men daily, that is, practically to all who wish for them.

This article, reopening as it did such an old controversial point, immediately provoked a vast amount of discussion, and the next issue of the *Journal* contains two letters, one from Dr. Astley Cooper and one from Dr. Charles A. Mercier. The former writer thinks that Sir Victor's condemnation is too scathing and does not believe that two and a half ounces of good spirits a day would do any harm; he thinks that alcohol has a distinct value in conditions of exposure where hot drinks and foods are not procurable. Doctor Mercier takes exception to all of Sir Victor's statements, and intimates that he is "inebriated with the exuberance of his own fanaticism."

In the next issue, Dr. Robert Simpson takes up the cudgels for Sir Victor and attempts to refute all the statements of the two physicians quoted in the last paragraph. On February 20th, Sir Victor himself enters the lists and breaks a lance with Doctor Mercier, indulging in some rather personal aspersions. As might be expected, Doctor Mercier retorts in kind in the next issue of the *Journal* and is joined by Dr. Josiah Oldfield, who also champions the Demon.

Not to prolong this reference too far, suffice it to say that arguments not unmingled with personalities fly back and forth until in the *Journal* for April 3rd, the long suffering editors politely but firmly declare that they "cannot continue this discussion any longer."

MEDICINE IN CHINA.

The first systematic and complete survey of the status of western medicine in China is reviewed in the recent (1914) report on *Medicine in China* by the China Medical Commission of the Rockefeller Foundation, appointed to study and report on conditions of medicine and public health in China. A study of the report shows two significant things: In the first place, plans to foster the medical future of China will be most effective in developing medical education of high standard; second, the cordial and commendatory attitude assumed after rigid investigation of the work of the medical missions.

The report sets down tuberculosis, syphilis, and

the hookworm disease as the most destructive and widely spread diseases in China. The almost total absence of public health activity is noted; after the revolution, effective public health work was instituted in Canton. Special mention is made too of the fact that in Changsha, the commission found a police commissioner who was also pursuing an enlightened policy as to public health, under the advice of the resident western trained physician. The time is considered ripe for a general advance in public health work throughout China.

Outside the missionary hospitals and treaty ports there are very few practitioners of western medicine; almost none with good training. The Chinese government maintains two western medical schools and there are various others with provincial support. These have a total of 657 students, but are entirely inadequate from every point of view. There are eight missionary medical schools and 565 students and 125 graduates. All are hampered by a small staff and insufficient money. The need for women physicians, both native and foreign, is emphasized. In selecting the best sites for medical education, the commission endeavored to choose "a few schools so situated and organized as to have as wide an influence as possible, and to afford reasonable assurance that they would give a high grade of teaching in the strictly professional studies and also foster the high moral standards which are essential for the best scientific and humanitarian work. We have been obliged to consider the suitability of each institution for effective cooperation with the foundation, particularly with regard to its standards, and its freedom from interference based on political, sectarian or personal prejudices."

After thorough study of the field, the commission recommended to the Rockefeller Foundation that it undertake medical work in China, and as far as possible cooperate with existing missionary institutions. It was recommended that the first medical school be in Peking, from every point of view the best place in China for such an institution, and in connection with the present Union Medical College, if suitable arrangements can be made. The second place recommended is Shanghai. Here existing institutions should combine to form a Shanghai Medical College. Canton, as the largest city of China and the great southern metropolis, is also chosen and assistance is approved for the Canton Christian College. For central China strong endorsement is given to the Yale medical work at Changsha, the capital of Hunan. In addition to these four medical centres, there are recommended model tuberculosis hospitals, fellowships in America for Chinese medical graduates, scholarships in the Chinese schools aided, and a policy of

developing the efficiency of those mission hospitals tributary to the four great centres, by supplying Chinese and foreign doctors, nurses, and equipment.

The Rockefeller Foundation has chosen wisely in selecting the field of medical education and public health improvement in China for its work in the Orient. It is entering China at an auspicious moment.

GRASS IN THE BLADDER.

G. Gore Gillon, of the Auckland Hospital, New Zealand, contributes to the *British Medical Journal* for April 24, 1915, a short account of a boy aged twelve years, who was brought to him suffering from pain in the bladder and retention of urine. A "gritty" sensation was felt as the exploring catheter reached the bladder. A suprapubic cystotomy enabled the surgeon to extract a stalk of rush grass nearly twenty-five inches in length, which the boy admitted having passed up the penis two days previously.

News Items.

Polyclinic Ophthalmic Society, Philadelphia.—At a recent meeting of this society the following officers were elected: President, Dr. William Zentmeyer; secretary and treasurer, Dr. Walter W. Watson; executive committee, Dr. William Campbell Posey, Dr. Wendell Reber, Dr. William M. Sweet, and Dr. Thomas B. Holloway.

Ohio State Clinical Association.—Dr. F. F. Lawrence, of Columbus, was elected president of this association, at the annual meeting held in Cincinnati during the week of May 3d. Dr. Mark Stevenson, of Akron, was elected first vice-president, Dr. W. Buechner, of Youngstown, second vice-president, and Dr. L. L. Bigelow, of Columbus, secretary-treasurer. Dr. C. S. Hamilton, of Columbus, was elected a member of the executive committee. Next year's meeting will be held in Columbus.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, May 17th, Philadelphia Clinical Association; Tuesday, May 18th, West Branch of Philadelphia County Medical Society, Mount Sinai Hospital Clinical Society; Wednesday, May 19th, Section in Otology and Laryngology of the College of Physicians; Thursday, May 20th, Northeast Branch of Philadelphia County Medical Society; Friday, May 21st, Southeast Branch of Philadelphia County Medical Society, Jefferson Hospital Clinical Society.

Medical Association of the Greater City of New York.—A stated meeting of the association will be held in Du Bois Hall, New York Academy of Medicine, on Monday evening, May 17th, at 8:30 o'clock. Dr. Henry Keller will present a paper on the Significance of the Presence of Acid Fast Bacilli in the Feces of Patients Suffering from Joint Disease, which will be discussed by Dr. E. E. Smith, Dr. Anthony Bassler, Dr. A. J. Moraver, and others. Doctor Bassler will report twenty uncommon cases of disease of the esophagus, stomach, and intestines, which will be illustrated with lantern slides.

American Aid for Belgian Physicians.—The report of the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession for the week ending May 8, 1915, is as follows: Contributions—The Medical Society of St. Lawrence County, Gouverneur, N. Y., \$25; The Orange County Medical Association, Santa Ana, Cal., \$25; Dr. Parke W. Hewins, Wellesley Hills, Mass., \$25; Dr. Emma B. Culbertson, Boston, Mass., \$25; Dr. L. L. McArthur, Chicago, Ill., \$25; Dr. V. B. Jackson, Washington, D. C., \$10; receipts for the week ending May 8th, \$135; previously reported receipts, \$6,585.50; total receipts, \$6,720.50.

A Division of Statistical Research.—A division of statistical research will be organized within the Bureau of Records, Department of Health of the City of New York, on January 1, 1915. Such a division has been contemplated by the department for many years; repeatedly it has been recommended by special committees. It is hoped that the new division will justify its existence from the start and that a reasonable amount of support will be given to it in the next budget. An effort will be made to utilize the activities of this new division in such a way that other bureaus of the department will be guided in their work by its findings.

Madame Depage a Victim of the Lusitania Disaster.—Madame Depage, wife of Dr. Antoine Depage, surgeon to King Albert of Belgium, who came to the United States last February for the purpose of collecting funds in aid of the Belgian Red Cross field hospitals, was drowned when the *Lusitania* was sunk off the coast of Ireland, on Friday, May 7th. Madame Depage came to this country as the representative of the Melis-Depage Executive Committee which was appointed by King Albert to provide field hospitals for the Belgian Red Cross Society. It is reported that she was taking to Europe \$100,000 contributed in the United States to the fund, but that this money was in the safe and went down with the ship.

Dental Hygiene Week in the New York Public Schools.—Dr. C. Ward Crampton, director of the bureau of educational hygiene of the Department of Education, has issued a typical program for Dental Hygiene Week, which will be observed in the New York Public Schools, May 24th to 28th. On Friday, May 28th, the 700,000 public school children will celebrate Tooth Brush Day by bringing their tooth brushes to school and learning the tooth brush drill. On Saturday the dental associations of the city will award a trophy to the class in each borough which best demonstrates the drill. The observance of Dental Hygiene Week marks the beginning of a steady campaign for sound clean teeth for every child.

A Registry of Wet Nurses in New York.—The Department of Health of the City of New York has made arrangements by which the names and addresses of women willing to give wet nurse care, will be reported to the central office of the Babies' Welfare Association. This information will thus be available to any physician in the city. While the association is not in a position to guarantee the physical condition of these wet nurses, only women who are apparently in good condition will be registered. Moreover, the department of health will be willing to have a Wassermann test made whenever a physician sees fit to take this additional precaution. The central office of the Babies' Welfare Association is in the Department of Health Building, 139 Centre Street.

American Proctologic Society.—The seventeenth annual meeting of this society will be held in San Francisco, Cal., on Monday and Tuesday, June 21st and 22d, with headquarters at St. Francis Hotel and place of meeting the Civic Auditorium. Fifteen papers are listed on the preliminary program which has just been issued. At the first regular session, on Monday afternoon, the annual address of the president will be delivered, the subject being Retrospect and Prospect. The officers of the society are: Dr. Louis J. Krause, of Cincinnati, president; Dr. Collier F. Martin, of Philadelphia, vice-president; Dr. Alfred J. Zobel, of San Francisco, secretary-treasurer; executive council, Dr. James A. MacMillan, of Detroit, chairman, Dr. Louis J. Krause, of Cincinnati, Dr. Lewis H. Adler, of Philadelphia, and Dr. Alfred J. Zobel.

Gifts and Bequests to Hospitals.—The late Josephine Borie bequeathed \$2,000 each to the Free Hospital for Consumptives of Philadelphia and White Haven and to St. Vincent's Home.

The medical institutions included among the bequests of the late Chauncey H. Brush were Chestnut Hill Hospital, \$52,000; St. Christopher's Hospital for Children, \$10,000; Germantown Hospital, \$10,000; Philadelphia Polyclinic Hospital, \$10,000; College for Graduates in Medicine, \$10,000; Pennsylvania Hospital, \$10,000; Episcopal Hospital, \$10,000; and the Women's Southern Hospital of Philadelphia, \$12,000 and any residue that may remain.

By the will of Miss Helen Collamore, who died in Boston on April 17th, the Massachusetts Homeopathic Hospital will receive \$220,000.

American Gynecological Society.—The fortieth annual meeting of this society will be held on Tuesday, Wednesday, and Thursday, May 18th, 19th, and 20th, at the Greenbrier White Sulphur Springs, West Virginia, under the presidency of Dr. Thomas J. Watkins, of Chicago. The address of welcome will be delivered by Dr. G. B. Capito and a response made by Dr. George Tucker Harrison. Twenty-two papers are listed on the program which will be read and discussed at the morning and afternoon sessions of Tuesday and Wednesday. On Wednesday evening Dr. Walter P. Manton, of Detroit, will deliver an address on Marriage Rites and Obstetrical Practices of the Ancient Romans, which will be illustrated by lantern slides. On Thursday, the third and last day of the meeting, there will be a joint session of the American Association of Genitourinary Surgeons and the American Gynecological Society.

To Interest Physicians and Nurses in Tuberculosis.—For the purpose of securing more cooperation from physicians and nurses in the antituberculosis campaign, the National Association for the Study and Prevention of Tuberculosis has inaugurated a movement to bring the importance of this subject to their attention. Among the first things which the association is trying to do is to induce the medical colleges and schools of nursing to give more instruction, particularly of a clinical nature, in tuberculosis. The clinical and other facilities of the various organizations affiliated with the national association will so far as possible be made available for the widest possible use in training doctors and nurses in tuberculosis work. The object of this campaign is to secure more accurate and earlier diagnosis of tuberculosis on the part of physicians and to show nurses the great opportunities of service in the home care of consumptives.

Tennessee State Medical Association.—At the annual meeting of this association, held in Nashville, April 13th, 14th, and 15th, under the presidency of Dr. Samuel M. Miller, of Knoxville, Dr. H. C. Ellett, of Memphis, was elected president to serve for the ensuing year. Other officers were elected as follows: Dr. J. G. Price, of Dyersburg, vice-president for West Tennessee; Dr. R. E. Lee Smith, of Doyle, vice-president for Middle Tennessee; Dr. J. W. Johnson, of Chattanooga, vice-president for West Tennessee; Dr. Olin West, of Nashville, secretary. Dr. C. N. Cowden, of Nashville, was named as trustee for two years for the official journal, and Dr. Jere Crook, of Jackson, was elected delegate to the next convention of the American Medical Association, with Dr. J. McC. Hogshhead, of Chattanooga, as alternate. The following were the new councillors for two years: Dr. S. R. Miller, of Knoxville; Dr. Scott Farmer, of Cookeville; Dr. J. F. Gallagher, of Nashville; Dr. A. B. Dancy, of Jackson, and Dr. J. L. Andrews, of Memphis. Knoxville was selected as the convention city for 1916. Officers were also elected today for the section of ophthalmology, a new department, Dr. G. C. Savage, of Nashville, being chosen president; Dr. N. C. Steele, of Chattanooga, vice-president, and Dr. O. Dulaney, of Dyersburg, secretary.

Scarlet Fever in New York.—During the year 1914, there were reported in the city of New York 11,105 cases of scarlet fever, with 452 deaths. Of these cases 8,459 were treated at home, 2,383 were removed to the hospital of the department of health, and 263 were isolated in institutions. The case fatality was 4.1 per cent., and the deaths in one thousand of the population were 0.81. The fact that many diseases show maximum and minimum periods in both case incidence and case fatality, is especially true of scarlet fever. The case incidence of this disease in New York in 1908 reached a maximum of 24,426; while in 1914 the number of cases was 11,105. There have been fluctuations between these years, but the tendency is downward and continues through the first quarter of 1915. Case fatality shows the same general tendency, barring minor fluctuations, this tendency culminating in the first quarter of 1915 with a case fatality of 2.7 per cent. for the entire city. The Bureau of Preventable Diseases of the New York Department of Health is carrying on thorough and comprehensive studies to determine just what amount and kind of disinfection serves a useful purpose in scarlet fever. Early diagnosis, prompt reports, immediate isolation of cases at home or their segregation in the department hospitals, are the fundamentals for controlling the disease, and in this work the cooperation of physicians in private practice is indispensable and invaluable.

A Low Death Rate in New York Last Week.—There were 1,609 deaths and a death rate of 14.46 reported during the week ending May 8th, against 1,607 deaths and a rate of 15.01 for the corresponding week of 1914. The causes showing an increased mortality were measles, scarlet fever, diarrheal diseases, and lobar pneumonia. Those showing a decreased mortality were diphtheria, whooping cough, typhoid fever, organic heart and kidney diseases, bronchopneumonia, and pulmonary tuberculosis. The death rate for the first nineteen weeks of 1915 was 14.71 per 1,000 of the population against a rate of 15.41 for the corresponding period of 1914.

Servia Calls for Health Workers.—The American Red Cross Society announces that the Servian Government is anxious to obtain 150 men to assist in the campaign against typhus fever and other diseases in that country. The men desired should be either young physicians, sanitary inspectors, fourth year medical students, or others specially trained in public health work. The pay is stated to be \$175 a month, to be paid by the Servian Government, with expenses to and from Servia. With the present information it is uncertain whether the living expenses in Servia are to be paid by the Government of that country or not. The period of employment is likely to be four months or more. Any young men of ability and character who would like to volunteer for this service should send in their names, addresses, ages, and professional attainments without delay. It is probable that appointees will have to leave for Servia within three or four weeks. The service to be performed is obviously highly important and dangerous, and accordingly only men of high character, judgment, with some training or experience in sanitary science should be recommended.

The Gorgas Prize Medal.—Referring to this medal, to be awarded yearly by the Association of the Medical Reserve Corps, United States Army, New York State Division, the Board of Award makes the following announcement:

The competition is open to medical officers of the army, officers of the Medical Reserve Corps of the Army, and medical officers of the organized militia.

The medal will be awarded for the paper submitted which shows the most important advance in medicine or surgery on a medical or medicomilitary subject; preference being given to papers on a medicomilitary subject.

The medal will be awarded only for papers of exceptional value.

The Board of Award consists of three members of the Faculty of the Army Medical School, appointed by the Surgeon General, United States Army.

The papers should be submitted to the Board of Award, Gorgas Prize Medal, by March 31st of each year, and should be addressed to the President of the Board of Award, Gorgas Prize Medal, Army Medical School, Washington, D. C.

The award will be announced at the graduation exercises of the Army Medical School, on May 31st of each year.

Personal.—Dr. Otto V. Huffman, secretary of the New York State Board of Medical Examiners, has been elected secretary of the faculty and executive officer of the Long Island College Hospital, Brooklyn, to fill the vacancy caused by the death recently of Dr. Joseph H. Raymond. He will assume his new duties shortly.

Dr. William L. Rodman, of Philadelphia, president elect of the American Medical Association, will be the guest of honor at the annual reception held by the West Branch of the Philadelphia County Medical Society on Tuesday evening, May 18th.

Dr. A. Hymanson, of New York, has been appointed attending pediatricist to the Beth Israel Hospital.

Dr. H. P. Gibbon, of Tiffin, was elected president of the Ohio State Medical Society, at the annual meeting held in Cincinnati on May 4th and 5th.

Dr. John J. Schmitt, a young Polish physician who is at present engaged in special urological work at Johns Hopkins Hospital under Dr. Hugh H. Young, sailed from New York on May 13th on the steamer *Carpathia* for Piræus, Greece. He will act in the capacity of sanitary inspector in connection with the American Red Cross Society.

Dr. Philip J. Castleman, formerly assistant director of the bacteriological laboratory of the Boston Board of Health, has been appointed director, to fill the vacancy caused by the death of Dr. James J. Scanlan.

HEMADENOLOGY:* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M. D., LL. D.,
Philadelphia.

(Seventh Communication.)

THE THYMUS (Continued.)

We laid stress in the preceding article (NEW YORK MEDICAL JOURNAL, May 1, 1915) on the dependence of the thymus upon the food intake and the bearing of this factor upon infantile marasmus. We traced the cause of death in this disease to the fact that bottle milk (owing to various chemical changes it underwent after leaving the udder) failed to provide the nucleoproteids which sustained the functions of the thymus, and also the various ferments that breast milk supplied to the infant which, acting collectively as antitoxin, protected it against the effects of toxins and other poisons, not only in marasmus, but in other diseases. It was stated that in the present communication we would inquire into the means calculated to prevent, if possible, the appalling sacrifice of infants which modern methods have failed to arrest.

Because of the chemical changes which begin soon after the milk leaves the breast, and inhibit and even annul the protective activity of its immunizing bodies, such milk becomes, as previously stated, an efficient culture fluid for bacteria capable of bringing on fatal intestinal disorders. This feature requires emphasis to indicate how greatly artificial feeding tends to compromise the life of the infant.

As is well known, not only is cow's milk not sterile when it leaves the animal, containing as it does often streptococci and tubercle bacilli, but it is subsequently given numerous opportunities for further contamination before it reaches the artificially fed infant. G. W. Goler (1) found by careful tabulations of the deaths in early childhood in Rochester, N. Y., that "the infantile death rate bore a close relation to the average number of bacteria per c. c. found in the municipal milk supply." This brings out clearly the fact that breast milk, i. e., milk transferred *directly from the breast to the infant's digestive tract*, has the least possible opportunity to become infected from the exterior. Provided that the mother's breasts are not diseased, human milk is therefore a safe food relatively so far as the bacterial content is concerned, while, conversely, the use of cow's milk affords more or less time for the multiplication of bacteria before it is consumed.

We have seen that living milk, i. e., milk just drawn from the breast or udder, contains various ferments which endow it with antitoxic and bactericidal properties. Now, Hunsiker (2), in an extensive series of observations on the bactericidal properties of cow's milk, found that while fresh milk had germicidal power, this lasted on the average from three to six hours, at 70° F., at most twelve hours. Hunsiker's findings were confirmed and amplified,

in 1908, by Evans and Cope (3). They obtained raw sterile milk directly from the cow, treated portions of it by heating to various degrees of temperature, and other portions by freezing, inoculated the specimens with various organisms after bringing them all back to room temperature, and then observed the rapidity of multiplication of these organisms by making counts at frequent intervals. At the end of four hours the lactic acid bacillus showed an increase of six per cent. in the raw sterile milk, fifty-five per cent. in the frozen milk, 250 per cent. in the sterile milk heated at 55° C., 1,000 per cent. in the milk heated at 68° C., 3,500 per cent. in the milk heated to the boiling point, and 2,500 per cent. in a bouillon control.

The inhibitory activity of raw milk was thus found to last only four to eight hours, after which the bacteria in the different specimens proliferated with approximately equal rapidity. At the end of twenty-four hours the counts made in the different specimens varied so little that it seemed almost as if they had all been subjected to the same treatment from the beginning. Among other organisms upon which the antibacterial effects of milk were tested by Evans and Cope, were *Streptococcus pyogenes*, *Micrococcus* or *Staphylococcus aureus*, and *Bacillus coli communis*. The results obtained were essentially the same as with the lactic acid organism. The reduction in the case of the streptococci amounted to 3.5 per cent., in the staphylococci twenty per cent., and in the colon bacilli forty per cent. At the eighth hour, the streptococci were further slightly reduced, but after this underwent rapid increase; the staphylococci had already begun to increase at the eighth hour, while the colon bacilli were about 100 times as numerous at this time as they had been at the fourth hour. In the specimens of milk heated at certain temperatures before being inoculated, no reduction in the number of bacteria was produced, except in the case of the streptococci in milk previously heated at 55° C. In the boiled milk the organisms always underwent rapid proliferation from the start.

These experiments show that while raw milk is endowed with well marked bactericidal properties, these are of short duration. This is explained by the chemical changes to which reference has been made, and as a result of which the ferments and nucleoproteids which take part in the immunizing process lose their activity. In cities, but few infants are enabled to take their cow's milk within eight or even twelve hours after it has left the animal; they receive it, then, after its inhibitory influence on bacteria has disappeared. Whatever microorganisms may have been picked up by the milk during its journey from the cow to the infant, have begun to multiply at once, and the longer the period elapsed,

*Hemadenology, from the Greek, $\alpha\iota\mu\alpha$, blood, $\alpha\delta\eta\gamma\alpha$, gland, $\lambda\omicron\gamma\omicron\varsigma$, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

the greater the danger becomes. *The infant then has to depend exclusively upon its own defensive activities for checking bacterial proliferation, which defensive activities are virtually nil.*

It is apparent in the light of all these facts that the only sure means to safeguard the life of an infant is to follow strictly the methods of Nature. The physician must realize that his consent to deprive an infant of breast milk entails the responsibility of reducing the chances of that infant to live. *The breast fed infant receives milk that is antitoxic and bactericidal and each feeding serves to hold at bay the agencies which tend to destroy it.*

Another feature of equally great importance asserts itself, in view of the data submitted, concerning the dependence of the thymus and all other ductless glands, upon chemically perfect milk to maintain their functional efficiency. Inasmuch as chemical changes occur in drawn milk which annul its ability to supply to the ductless glands those agents through which they are able to build up their products, and these products take part in tissue nutrition and oxidation, it is evident that in order to

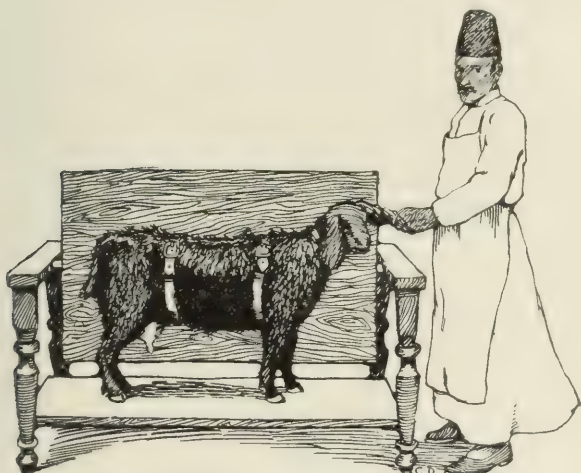


FIG. 1.—Hornless goat secured to the table top while the latter is held vertically (Antonii). *Domenica del corriere*, Sept. 1, 1907.

supply adequately all elements needed for the development of the infant, and thus place its organism in the best possible condition to resist disease, no opportunity should be afforded to the milk to undergo chemical reactions which to any degree whatsoever would impair its nutritional value. *The breast fed infant receives milk which is chemically perfect and better capable, therefore, than any bottle milk, of insuring its physical development and powers of resistance to pathological changes.*

Our duty in view of these facts is plain: *Nursing should invariably be insisted upon where no disease of the mother contraindicates it.* Inability to nurse is no longer a valid excuse. Jacobius (4), for instance, was able to have women nurse their infants after intervals of several weeks, and Wile (5) was able to reestablish maternal nursing through the regular sucking of an infant, even though several months had elapsed since the breasts had been used. As stated by J. P. Crozer Griffith (6), "the contraindications to breast feeding are more fancied than real."

Social convenience should under no circumstances be allowed to prevail. No one, and much less a parent, should be permitted to compromise the life of a child. Wet nursing should alone be permitted to replace the mother's when the parents possess



FIG. 2.—The table top replaced with the goat in position (Antonii). *Ibidem*, Sept. 1, 1907.

sufficient means to have "social duties." Where poverty and the necessities of a livelihood render wet nursing impossible, and it cannot be provided through eleemosynary institutions, many of which are doing laudable work in this direction in many parts of the world, *wet nursing by animals affords a practical substitute*, as will now be shown.

Goat's milk. Of all the resources at our disposal, the use of goat's milk is probably the most promising, judging not only from its many properties, but also from recorded experience. The one prevailing objection, that it has an unpleasant odor and taste, does not hold when strict cleanliness of the animal and particularly the udder is the invariable rule. In



FIG. 3.—The infant being fed directly by the goat (Antonii). *Ibidem*, Sept. 1, 1907.

fact, the odor is a valuable telltale which denotes that proper care of the animal is now being taken. The habits of goats facilitate the maintenance of cleanliness. While they are by nature habitually clean, never, unlike cows, lying in their excrements,

the latter are small and compact, drying easily on exposure to the air. Goats are also fastidious as regards their food; they refuse to eat anything that has been soiled in any way or trodden upon. They lend themselves readily to grooming, and their relatively small surface, compared to that of cows, renders the task quite easy.

While their cost is relatively small, increasing, of course, as is the case with cows, when high classed breeds are desired, their yield in milk is surprisingly large. The commonplace, backyard "nanny" will yield over a quart daily, but with cross breeding this may be raised to three and even four quarts. Certain high priced (about fifty dollars, including transportation to the United States) Alpine breeds, the hornless Saanen or Toggenburg, for example, have been known to yield as much as seven quarts daily. When it is recalled that aside from its cheese manufacturing value, fresh goat's milk sells at forty cents a quart, and that there is considerable demand for it for invalids and debilitated children, it becomes evident that the quantity over and above that needed for an infant may be made at least to pay the cost and maintenance of a finely bred milch goat. Especially should this be the case in view of the facts that a warm, well ventilated shed in a small clean backyard will form a comfortable abode for a goat, and that the cost of its fodder—clover, hay, alfalfa, bran, oats, barley, kitchen peelings, pea pods, celery tops, stale bread, lawn grass, etc.—hardly averages \$1.40 a month. We have seen that foundling asylums, even under good management, are veritable death traps for infants when wet nursing cannot be provided; all such institutions and even the murderous "baby farms" (provided that the latter are converted into well governed institutions under medico-official supervision) could also be made self sustaining financially through the use of milch goats for the direct nursing of infants. Thousands of innocent victims could thus be saved annually.

As regards the adaptability of goat's milk to nursing purposes, it presents several advantages over cow's milk. It approximates human milk more closely in composition and structure than any other readily available milk. Its fat exceeds human milk on an average by only 0.4 per cent., while cow's milk exceeds it by 0.7 per cent.; the fat globules are also smaller and more easily dissolved. Its caloric value is thus greater. While the proportion of casein is the same as in cow's milk, that of the goat, under the action of rennet or hydrochloric acid, forms a precipitate which is not, as is the case with cow's milk, tough and close, but flocculent and loose, being thus better prepared for toleration by the stomach. The lactose is only 0.3 per cent. less than in human milk, while in cow's milk it is 1.7 per cent. less. Goat's milk shows a deficiency of albumin compared with human milk of 0.3 per cent., while cow's milk shows a relative deficiency of 1.1 per cent. The only feature in which cow's milk compares more favorably with human milk is in its proportion of water—only 0.2 per cent. deficiency, while in goat's milk the deficiency is 1.9 per cent. This defect, which can readily be remedied by the addition of a little boiled (but not distilled) water, has not been found to constitute a drawback in infants nursed directly by goats.

Another marked advantage of goat's milk over

cow's milk is the freedom of goats from tuberculosis, whereas cows are preeminently predisposed to this disease. Thousands of goats slaughtered at La Villette, Paris, and studied for this purpose, failed to show a single instance of tuberculosis. When we take into account the fact that a single tuberculous cow will infect the milk of an entire herd, the probability is very great that the average artificially fed infant is several times exposed to infection during the period it subsists entirely on cow's milk. This comparative immunity of goats does not, however, apply to all infectious diseases; these animals are readily infected for example, by, and transmit "Malta," "mountain," or "slow typhoid," as observed in Texas and New Mexico (7). This suggests clearly that precautions to protect goats from infection should not be neglected, despite their practical immunity from tuberculosis.

The possibility of using goat's milk for direct nursing has been demonstrated in various countries. In some parts of Europe and in the West Indies no precautions worthy of the term are taken to keep the udders clean. The milch doe plays her role with due gentleness, often responding to the infant's cry to be suckled. More in keeping with modern aims, however, is the method devised by Dr. Esther Antonii, the Italian directress of the Maternity of Alexandria, Egypt, and which has given excellent results. She uses a small table, the top of which may be turned vertically. The goat, carefully cleaned, is attached to this vertical top, and the latter is then replaced in the horizontal position. The teats are then carefully washed and aseptized, and the infant, lying on a pillow, is suckled. The table and general procedure are shown in the annexed illustrations.

The greater density of goat's milk compared with human milk sometimes requires the addition of a fixed proportion of water to the former. How this, and the addition of other agents, lime water, sugar, etc., may be accomplished, will be shown in our next communication.

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(To be continued.)

Relief from Toothache Due to Acute Pulpitis.—

Raynal, in *Gazette médicale belge* for May 7, 1914, is credited with the following formula to be used locally for toothache:

R Chloroformi, }
 Creosoti, .. }ãã 3iiss (10 grams);
 Tincturæ opii, }
 Tincturæ benzoini, }ãã 5i (30 grams).
 Misce.

The tooth cavity should first be gently cleansed with a stream of tepid water from an appropriate syringe, and dried out. The analgesic preparation should then be dropped in or applied on a small ball of cotton. This should be held in by another of proper size to fill the cavity, impregnated with tincture of benzoin.

Pith of Current Literature.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

March 2, 1915.

Mesogastric Stenosis of Ulcerative Origin, by A. Mathieu.—A study of forty-one cases of this condition is presented. Both temporary and permanent biloculations of the stomach are included. In but nine instances had the original ulcerous condition of the stomach begun less than five years before mesogastric stenosis was noted. The following typical clinical picture is formulated from observation of the author's cases: The patient is often a woman of forty or forty-five years who has had gastric trouble ever since early adult life or even adolescence. Painful attacks lasting some weeks have occurred at varying intervals. Hematemesis or melena has rather frequently been noted. The pain is often most severe in the left part of the epigastrium and radiates toward the chest or shoulder of the same side. Tenderness is sometimes limited to the area overlying the upper portion of the right rectus muscle; or, it may be found in the epigastric region also. Where such a condition as the foregoing exists, x ray examination may be expected to reveal mesogastric stenosis, which may be either incipient and spasmodic, or organic. Slow gastric evacuation and abnormal peristalsis are observed only where the upper gastric pocket is sufficiently developed and the stenosis sufficiently tight. The possibility of a coexisting pyloric stenosis is always to be borne in mind.

Mycotic Infection of Wounds and Its Treatment, by E. Rouyer and J. Pellissier.—Some wounds met with in military practice, in spite of application of the usual remedial measures, including tincture of iodine and hydrogen dioxide, failed to heal. While the central portion of the area showed fleshy granulations requiring the use of silver nitrate to prevent too active proliferation, the peripheral portion was covered with a grayish membrane, adherent to the subcutaneous tissues and constantly extending to adjacent healthy skin. The condition was found due to infection with *Saccharomyces tumefaciens*, described by Curtis in 1895, and was rapidly cured by the use of a copper sulphate stick. In one case a cryptogam allied to the genus *Oospora* was similarly found, and iodine treatment instituted. The question arises whether such mycotic infection does not favor the development of virulent anaerobic organisms and lead to the production of late septicemias.

PRESSE MÉDICALE.

March 11, 1915.

Improved Method of Using Nascent Iodine, by L. Chevrier.—The ordinary methods of applying nascent iodine fail to secure a prolonged action of this active antiseptic agent, the iodine being all set free at once, with consequent early cessation of its effect. Chevrier's procedure involves the use of neol, a preparation having the property of setting free oxygen in the form of ozone gradually and persistently. One part of neol is mixed with one part of a one in 100 solution of sodium iodide, and if necessary, the resulting mixture diluted with three to

five parts of sterile water. The mixture must be made extemporaneously—preferably, where possible, in the wound itself. Protracted action of a small amount of nascent iodine was found to give much better results than brief action of a larger amount. The neol iodide mixture, which gradually sets free iodine—the solution becoming yellowish brown—may be used either for immersion of affected tissues, such as a finger or the palm or dorsum of a hand, or for wet dressings, for wound packings, and for injection into cold abscesses after puncture and evacuation. In the last mentioned lesions, injections of undiluted neol iodide mixture gave better results than iodoform glycerin, iodoform ether, etc. In infected wounds and open acute suppurative conditions, the effects were superior to those of all other methods, infection being at once arrested and repair taking place with unusual rapidity. Packing dipped in the pure mixture is inserted in all ramifications of discharging wounds, and an external wet dressing dipped in a forty per cent. dilution applied. Excellent results were obtained in cases of felon, and the method was also applied in metritis and some forms of puerperal infection.

REVUE MÉDICALE DE LA SUISSE ROMANDE.

February, 1915.

Dislocation of the Carpai Semilunar Bone, by H. Vulliet.—Prompt treatment is essential to satisfactory results. Whenever the wrist remains stiff for a considerable period after traumatism, an injury to the carpus should be thought of and an examination with the x rays made. In the case of the semilunar, however, a diagnosis can often be made promptly without the aid of the rays, local swelling being often but slight, and the nature of the disturbance easily perceptible upon inspection and palpation. The carpus is thickened anteroposteriorly, and a bony prominence can be felt on the palmar aspect of the carpus. Colles's fracture is excluded by palpation of the lower end of the radius and by the absence of the silver fork deformity. Three of the author's twelve cases are reported in detail. From the results obtained in these cases he advises that in fresh dislocations the attempt be made to secure reduction by vigorous traction on the hand—thus enlarging the space between the os magnum and radius—and direct pressure on the displaced semilunar into the socket thus formed. A slight jerk at the moment of reduction and disappearance of the palmar prominence are indicators of success, but confirmatory x ray examination should in addition be employed. Where the dislocation cannot be reduced, as is nearly always the case two or three weeks after the accident, operative removal of the semilunar bone should be effected. Better functional results were obtained, in Vulliet's experience, in this way than by incision and reduction. Normal and painless function returned much sooner, moreover, after excision than after bloodless reduction.

BRITISH MEDICAL JOURNAL.

April 24, 1915.

Pathology of Ulcer of the Stomach, by Charles Bolton.—From studies on the lower animals, including cats, rabbits, and monkeys, the conclusion is reached that the normal gastric juice is capable of

digesting the tissues of the gastric wall under certain conditions. The conditions are such as lead to some lesion either gross or nutritional of the cells in a given locality. A gastrot toxin was prepared by the injection of the gastric cells of an animal into another animal and using the serum of the second for the production of lesions in another animal of the same species as that from which the cells were obtained. The lesions thus produced were not physically recognizable, but they were such as to permit the subsequent digestion of the damaged cells by the gastric juice of the animal. In these cases it was found that the neutralization of the acid of the gastric juice by the administration of an alkali would prevent or greatly reduce the subsequent digestion. On the other hand, measures which increased the hydrochloric acid content of the gastric juice increased the size of the ulcer and materially delayed the process of its healing. Just such a condition of hyperacidity is commonly present in gastric ulcer and tends both to increase the destruction and to prevent resolution. The epithelium has been found to be quite able to proliferate even in the presence of a considerable grade of acidity, but this can only cover a base which is granulating. The presence of an excessive or normal acidity, however, is sufficient effectively to prevent granulation of the base and thus to prevent healing. The rate of healing of acute ulcers in animals was shown to depend upon the diet, or in other words, upon the motility and acidity. Where there was motor insufficiency there was also delay in healing. The corollary from these observations is that in man the diet should be such as to call forth the lowest degree of acid secretion and one which would not tend to leave food remains in the stomach for long periods between feedings.

Wound Infections, by Sir A. E. Wright.—The third installment of this series of studies deals particularly with the questions of treatment with antiseptics and by physiological methods. An analysis of the former method shows that little or nothing is actually accomplished and that considerable harm can be done to the tissues. In the first place we have no knowledge of the strength of antiseptic solutions which are required for the destruction of even a considerable proportion of the organisms in a wound when these are present in serum or pus. Secondly, even granted that at times by sufficient lavage with an antiseptic we accomplish the destruction and removal of the majority of organisms free in the wound, we have not destroyed nor inhibited the growth of those which lie in the tissues of the wound wall, and these continue to multiply and soon contaminate the wound as badly as before treatment. The proof of this fact is the common recognition by surgeons of the need for frequently repeated dressings. On the other hand the results of the observations reported in the previous articles (see the JOURNAL for May 8th) offer hope for the successful application of physiological methods. The free opening of an abscess cavity or of a wound sinus not only permits the removal of pus and bacteria, but it brings about the removal of those substances which counteract the antibacterial powers of the lymph and leucocytes, thus giving these opportunity for full action. In the first type

of infected wounds—those with uncovered granulation tissue lining them—it would be most desirable to wash the bacteria out of the infected tissues by an outflow of lymph, which would also carry with it antibacterial substances and phagocytes. This can be accomplished by the use of hot fomentations; the application to the wound of ether; or by the use of a solution containing five per cent. of salt and 1.5 per cent. of sodium citrate. This prevents clotting and by its osmotic properties stimulates the exudation of lymph. In the second type of wound—that with an infected dry and infiltrated wall—the latter solution should prove the most useful, but it should also be combined with the use of hot fomentations to soften the dried tissues.

LANCET.

April 24, 1915.

A Reinvestigation of the Nature of the Cellular Elements in Milk, by R. Tanner Hewlett and Cecil Revis.—In a preliminary report the authors expressed the opinion that, although the majority of the cells found were multinuclear, they were not leucocytes. It was held that they were derived from the germinal cells of the glandular epithelium and were cells of an embryonic nature. Since the publication of this original paper, however, some doubt has been thrown upon the explanation of the nature of these cells and the present reinvestigation was undertaken to provide further evidence as to their exact source. The methods are described by which these cells may be obtained from milk, by which they may be secured in films, and the preparation of these films, including their fixation and staining. It is shown that all of these factors may introduce changes in the morphology of the cells which may render their identification difficult. The paper is largely a technical one but it contains evidence which tends to corroborate the authors' former views to the effect that these multinuclear cells are not leucocytes but are cells normally derived from the epithelium of the udder.

PRACTITIONER.

April, 1915.

Arteriosclerosis, by A. Graham-Stewart.—Apart from the onset of nephritis, the causes of arteriosclerosis commonly given in textbooks are syphilis, alcohol, lead, gout, and the overuse of the muscles, but there are many cases in which no such cause can be detected. Graham-Stewart supplements this list with the following: 1. Habitual constipation and chronic intestinal stasis, an alimentary toxemia that furnishes a large percentage of cases. 2. Errors in diet, consisting chiefly of too much meat, highly seasoned foods, condiments and spices, and purin laden articles. 3. Heavy eating. 4. The strain of modern life, especially if combined with prolonged worry. 5. Burning the candle at both ends; too much work, too little sleep, continuous activity without rest or relaxation, and hurried meals. 6. Chronic septic states. Early symptoms of arteriosclerosis are a slight shortness of breath on a slight amount of exertion; headache, or a sense of pressure or fullness in the head; slight giddiness on assuming the erect posture quickly; dilatation of the venules in the malar region. A feeling of tightness

across the chest may be an early sign, but more often it is late; cases with this symptom are apt not to do well. Cerebral symptoms also may appear early, but are generally late. Another early sign, which may be almost the only thing complained of, is an irritating cough, that calls attention to the vascular system, or a sort of sigh, due to a feeling as though there was not room enough in the chest. Digestive troubles are common, as well as the frequent passage of large quantities of limpid urine of low specific gravity. General weakness, loss of weight, depression of spirits, evil forebodings, loss of memory, and hesitation in speech are not uncommon. All of these symptoms call attention to the vascular system, where we may find the pathognomonic signs more or less well marked. The indications for treatment are to remove any known cause, such as muscular overstrain, alimentary toxemia, or general stress and strain; to regulate the diet, avoiding practically all red meat, soups made from stock, meat juices and extracts, spiced food, curries, tomatoes, and animal organs, especially sweetbreads, and advising milk, not in excess when the vessels are very calcareous, vegetables, eggs, cheese, bread, butter, and nuts; and to promote elimination by catharsis, warm baths, regular gentle exercise, and plenty of fresh air. Other treatment should be governed by the indications in the individual case.

Drugs as Blood Pressure Elevators, by Allan Watson.—Atropine, camphor, cotarnine, digitoxin, ergotoxin, and strychnine appear to be of no value in raising blood pressure. Adrenaline seems to be a dangerous drug, which should always be used with caution and never for this purpose. Eserine is effective, but its use is not advisable because of the distressing nausea, vomiting, and faintness it produces. Pituitary extract is considered of doubtful value.

Administration of the Nauheim Treatment in England, by Leslie Thorne Thorne.—Quite as satisfactory results can be obtained from this treatment elsewhere as at Nauheim. It has proved successful in many cases when rest and heart tonics have failed to give relief, and is quite as successful in reducing dilatation and relieving symptoms in cases of valvular defects, with a weakened and dilated myocardium, as in uncomplicated cases of myocardial weakness. The use of carbonated baths in the early stages of the treatment is harmful in most cases.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

April, 1915.

Vaccines in Bacterial Diseases of the Lungs Complicating Pulmonary Tuberculosis, and Their Preparation, by F. W. Wittich.—The author describes his method of preparing vaccines from sputum, and their standardization, and then emphasizes the fact that vaccine therapy of secondary infections is only an adjunct in the treatment of pulmonary tuberculosis, the primary treatment of which is rest, fresh air, and diet, with tuberculin in suitable cases, though certain cases will improve much faster under this treatment. It has been the turning point of the disease in some. As Theobald Smith said, "vaccines applied during disease will be rarely, if ever, life

saving, but they may hurry a stationary or languid process which tends toward recovery, by bringing into play the unused reserves of various tissues."

Blood Transfusion in Infants and Young Children, by L. Bruce Robertson and Alan Brown.—These writers believe transfusion to be a safe and not complicated procedure. The danger from hemolysis is overrated, and the injection of small air bubbles has caused no ill effects in their experience. The immediate effect is beneficial in all cases; the final outcome depends on the original condition. Their best results have been obtained in hemorrhagic disease of the newborn, simple secondary anemia, and marasmus.

INDIAN MEDICAL GAZETTE.

March, 1915.

Significance of Arneth's Leucocyte Count, by H. H. G. Knapp.—Arneth showed that the polymorphonuclears can be divided into groups according to the number of lobes in the nuclei. Five groups are so formed, according as there are one, two, three, four, or five lobes. The proportions are found to be pretty constant in the blood of a normal person, and the average count from a number of cases is taken as the normal. Arneth's normal reads thus: I:5; II:35; III:4; IV:17; V:2. Knapp finds that there is a decided shift in the left in these figures in several infectious diseases, such as measles, tuberculosis, and malaria and one to the right in syphilis, amebic dysentery, ancylostomiasis, and particularly leprosy. The shift is pretty constant in malaria and becomes more pronounced in tuberculosis as the disease advances. He considers an absence of shift to be presumptive evidence against a diagnosis of tuberculosis or malaria.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

May 1, 1915.

Wassermann Reaction; Its Bearing on Matrimony, by W. J. Heiman.—A positive reaction ordinarily indicates active syphilis, but the test may be positive, in the absence of syphilis, in certain other diseases, though under conditions which are easy to recognize and exclude. On the other hand, the reaction is at times negative in active syphilis, but only under definite and characteristic circumstances; and when this is understood, no confusion should arise. There is clinical and experimental corroboration of these facts, and thus assent to matrimony should be withheld from individuals with a positive Wassermann reaction.

The Intravenous Injection of Mercurialized Serum in Syphilis, by Loyd Thompson.—Certain unpleasant results, such as phlebitis and periphlebitis, having been sometimes noted from the intravenous injection of mercurial salts in watery solution, it occurred to the author that these might be obviated by injecting mercurialized serum instead. This was tried in eight cases, and sixty-six injections have now been made without the occurrence of the slightest phlebitis in any instance. From forty to fifty c. c. of blood are collected, and placed in a large test tube which has been boiled in salt solution. After separation from the clot, one third of the serum is put into one tube, and the remainder into another. To the first part is added, in the pro-

portion of one c. c. to each c. c. of serum, a solution of mercuric chloride containing twenty-two mg., one third grain, to the c. c. The heavy precipitate of albuminate of mercury which appears is completely dissolved on the addition of the remainder of the serum, and if the mixture is heated for half an hour in a water bath at 55° C. (131° F.), the albuminate may be kept in solution indefinitely. After the application of a tourniquet, the injections are made into one of the veins at the elbow by means of an all glass syringe with a sharp twenty-five gauge needle. While the intravenous administration of mercury is not the method of choice in all cases of syphilis, it is so in certain cases in which quick results must be secured, and in those cases in which great pain is caused by intramuscular injections.

Action of the Opium Alkaloids, Individually and in Combination with Each Other, on the Coronary Artery and the Coronary Circulation, by D. I. Macht.—Experimental investigations on animals and the human being (on the latter by means of the ring method) show that of the principal opium alkaloids, some affect the coronary circulation markedly, others slightly, and still others not at all. Thus, narcotine and papaverine produce a very marked dilatation of the coronary artery, morphine, a mild dilatation, and codeine a very slight one, while narceine and thebaine have no action whatever. A combination of morphine and narcotine produces a much less pronounced relaxation of the coronary than that caused by each of them separately. This action of the opium alkaloids has been studied in three different ways, and probably holds good in the clinic, and it is hoped that the observations made may conduce to a more rational therapy of cardiac conditions. Thus, for instance, in cases of coronary spasm, which is regarded as the commonest cause of angina pectoris, an opiate possessing a marked vasodilator action would certainly be preferable. J. Pal, of Vienna, who has worked a great deal with papaverine, has actually recommended and employed this in angina and other conditions with vascular spasm. In choosing a suitable drug, however, other factors must be borne in mind. The principal factors to be considered in the case of an opiate are its narcotic and analgesic action, its effect on the respiratory centre, and its effect on the heart. As regards the first of these, narceine and thebaine have no sedative action; indeed, thebaine is a convulsant much like strychnine, and narceine also has an excitant, rather than a sedative influence on the central nervous system. Narcotine, likewise, has very little effect on pain. The narcotic and analgesic properties of morphine and codeine are of course known to all, but it is not generally appreciated that papaverine is quite an efficient drug in this respect. In regard to action on the respiratory centre of these three alkaloids, morphine is decidedly the most depressant. Papaverine is much less depressant, and codeine still less so. As to the action on the heart, narcotine has the most toxic effect of any of the six alkaloids studied. Morphine, though not very poisonous, is in full doses depressant, while codeine and papaverine have no depressant action and in small doses were found actually to stimulate cardiac activity.

MEDICAL RECORD.

May 1, 1915.

Observations on Twilight Sleep, by J. W. Brannan.—Brannan states that he has seen several women in twilight sleep and from twenty to thirty cases after delivery. He has also seen the babies, including some which had suffered from oligopnea, and they all appeared to be flourishing. He has felt obliged to go into this new method of treatment because it was being so extensively used in some of the New York hospitals. He would not wish, however, to express a final opinion concerning it until he has data from several hundred cases. At present he does not see anything to contraindicate its use in selected and well conducted cases; but, in his judgment, it cannot be safely employed by the general practitioner, and should be restricted to specialists.

Chronic Dilatation of the Stomach, by W. H. Barber.—Physiological dilatation appears to be the dynamic resultant of work and load, with the balance in favor of the load. Such a state is usually acquired, but often predisposed to by torsal malformations, which are apt to be accompanied by a vertical stomach. Chronic atonic dilatation, etiologically considered, is, then, a problem in pathological physiology. For normal or hypertrophied stomachs the pylorus is the most efficient outlet, and the nearer the artificial stoma corresponds with the physiological point of outlet, the greater is the efficiency. For moderately atonic stomachs, or stomachs with fifty per cent. impaired prostatic power, the efficiency of the stoma is probably greatest in the pyloric antrum; while for the markedly atonic, with pronounced muscular insufficiency, the pendant stoma appears to be most efficient.

American Thermal Springs, by Guy Hinsdale.—Experience at the Hot Springs, Virginia, and observation at other spas where patients come for the relief of chronic gout, rheumatism, arthritis, fibrositis, and kindred maladies, leads to reliance on the following measures, modified according to individual resistance and susceptibility. 1. A tub bath at 102°, 103°, or 104° F., lasting from six to twelve minutes, and with vigorous (or gentle) rubbing, especially of affected areas. 2. A hot, dry pack, lasting from ten to twenty-five minutes. The patient is wrapped in a dry, hot sheet and laid on a couch, where he is closely enveloped in hot blankets, care being taken, as the three or four blankets are successively applied, to allow no chance for the entrance of outside air. 3. The application of cloths wet in ice water to the head while the patient is in the tub and the pack. 4. After the pack a douche of cold water all over the body, or, in more delicate patients, the application of a sponge dipped in cool water quickly, two or three times, up and down the spine. 5. A more or less vigorous rubbing all over the body, for from five to eight minutes, with pure alcohol; when, on account of the condition of the skin, alcohol is contraindicated, cocoanut oil may be used. 6. After baths on three successive days, a day of rest. 7. An additional measure instituted on the fifth day is the use of a warm douche (104° F.) for from five to ten minutes preceding the tub bath. This is to be applied all over the body except the

head and breasts; the pressure, from a quarter inch nozzle, to equal ten to twenty pounds to the square inch, and preferably a fixed jet from an unvarying natural supply of thermal water. 8. Rest after the bath, preferably in bed. 9. The total number of baths are governed by individual needs; twenty or twenty-one for average cases. 10. An aftercure, or period of relaxation, in favorable climatic surroundings and under suitable medical observation, with tonic measures prominent. 10. Dietary provision and advice during treatment and for future use.

Kellogg-Bergonié Method in the Treatment of Obesity and Other Chronic Disorders, by A. J. Read.—For the relief of obesity all that is required is to increase metabolism by increasing the activity of the muscles and to reduce the intake of fat forming foodstuffs. It is often difficult or impossible for the patient to take the necessary exercise. A remarkable property of the sinusoidal electric current is its ability to evoke painless muscular contraction, and automatic exercise or electrical gymnastics induced by the Kellogg-Bergonié method is therefore of very great service. The patient lies upon a couch or reclining chair, with electrodes adjusted to the groups of muscles underlying the principal masses of surplus fat, and the current is turned on. Vigorous rhythmical action is produced in the several groups, either in alternation or simultaneously, as may be desirable for the individual case. The amount of work done may be regulated by adjusting sand bags to each muscular group over the electrode so that at each contraction the muscles are compelled to lift a weight. Under the influence of this method, in conjunction with proper regulation of the diet and with voluntary exercise, which should always accompany the treatment, if possible, weight may be reduced with any desired degree of rapidity; though too rapid a loss of flesh is not desirable. A reduction of half a pound a day is about the minimum rate of weight loss which should be expected.

AMERICAN JOURNAL OF THE MEDICAL SCIENCES.

May, 1915.

Gastric Headaches, by W. F. Cheney.—The headaches due to gastric disease are usually periodic; they may occur but once in a month, or once or several times in a week. The most common experience is sudden attacks coming on after weeks or days of good health. Such headaches, which are sometimes extremely severe, are of variable duration, but rarely last over twenty-four hours. Sometimes nausea and vomiting accompany them, giving rise to the popular term, sick headaches, but in other cases there may be no gastric disturbance whatever, and repetition of the attacks may go on indefinitely before their real cause is discovered. One sided headache is frequently caused by the autointoxication of chronic intestinal stasis; it is the characteristic type of the paroxysm known as migraine, and it sometimes occurs as a manifestation of uremia. On the other hand, the headache of gastric origin often involves the whole forehead and vertex, with a throbbing distention and fullness not limited to any one area. While there may be no manifestation of gastric disorder present, in other instances minor evidences of this may be found, such as belching,

water brash, a sense of distention after meals, an abnormal appetite, or a persistent soup taste in the mouth. In a third group of cases there is definite complaint of habitual indigestion, which may be of the hyperchlorhydria, the atony, or the chronic gastritis type. Whether there is complaint of indigestion or not, a test meal and gastric analysis should be resorted to, but only after elimination of all other possible causes can the stomach condition be accepted as the basis for treatment.

Dahlia in Infections, by J. Ruhrah.—The saturated solution (about four per cent.) can be applied to the mucous membrane of the throat without causing pain or subsequent irritation. The drug seems to penetrate only to short distances, and for the deeper seated affections has no value; but for superficial involvement of the mucous membranes, whether the infection is due to the streptococcus or other organism, the beneficial effect is often striking. It not only kills the offending organism, but has a marked effect in stimulating healing. For ulcerations about the mouth it may be used either by applying a saturated solution or a mouth wash varying in strength from one to 100 to one to 10,000; the stronger solutions being required only rarely. Externally upon skin surfaces, especially where there are ulcerations, the drug may be employed with marked benefit, and its successful use has been reported in acute and chronic eczema, herpes, tinea, and furunculosis, as well as in erysipelas. Although dahlia has the disadvantage of staining fabrics with which it comes in contact, most of the stains caused by it can be removed if the discolored garment is immediately washed out in cold water.

Tuberculosis in the Aged, by J. B. Hawes, 2nd.—There is no class of patients more in need of adequate treatment and supervision, both for their own sakes and for others, than senile consumptives; nor is there any other class more neglected. The menace to the immediate family and to the public from such cases has been frequently commented on, but cannot be too strongly emphasized. The process and the bacilli causing it may be benign for the patient, but quite the reverse for others, and it has been the experience of many physicians to find case after case of phthisis occurring in one family, and to be unable to discover the original source of infection until, often by accident, a grandparent or some other older person, apparently in good health except for a slight cough, is found to be expectorating sputum loaded with tubercle bacilli. The sound advice to examine the children in any family in which there is a case of tuberculosis might well be enlarged so as to include all elderly persons with any cough whatsoever. As for the treatment of tuberculosis in the aged, one will accomplish more by keeping the patient warm and comfortable day and night in air which is fresh and pure, but not necessarily cold, than by demanding rigid adherence to a strict outdoor regime.

Strychnine in Broken Cardiac Compensation, by L. H. Newburgh.—Neither pharmacological nor clinical evidence justifies the use of this drug in the treatment of acute or chronic heart failure. In no one of eight cases of broken compensation in which the effect of strychnine was carefully studied was the patient benefited by its employment. The compensation was not improved in the slightest by it,

while four of the patients subsequently recovered their compensation under digitalis. Two other patients died in the hospital, and the remaining two were discharged unimproved. The failure of strychnine to have its reputed effect cannot be explained by assuming that the patients under observation were beyond all therapeutic aid, since, as mentioned, half of them did regain cardiac compensation when given digitalis. These four patients did not recover during the strychnine period solely because strychnine does not improve the work of the heart.

Pilous Cerebral Adiposity: A New Syndrome, by W. M. Kraus.—Many instances of genital dystrophy associated with obesity have been described since Fröhlich first separated the syndrome from the general class of obesities, but no account has been found of a class of cases complicated by an anomalous condition such as that observed in the case reported. This condition consists of a marked increase of the body hair, with a lack of the dry skin characteristic of the classical Fröhlich syndrome. The patient, a male, did not begin to take on fat until four years ago, at the age of twenty-seven years. In 1910 he weighed 150 pounds, and in 1914, 282 pounds.

ANNALS OF SURGERY

March, 1915.

Tonsillectomy in Children, by Donald Balfour.—In the Mayo Clinic 1,654 patients were successfully operated on in the past five years, the following technic being employed: Good anesthesia is the first essential. A Whitehead mouth gag without the tongue depressor is fixed in place. The operator's index finger is introduced behind the posterior pillar of the tonsil, and by firm upward traction of the tonsil, the anterior pillar is put on the stretch; with blunt dissecting scissors or tissue forceps the pillar is then well freed from the anterior surface of the tonsil, care being taken not to break through the capsule. This enables the operator, by means of the supporting finger behind, to force the tonsil well forward and to engage it securely with the tenaculum. Ordinary uterine tenacula, although they have a tendency to tear into a soft, friable tonsil, when carefully manipulated are very satisfactory for this purpose. The tonsil, firmly held, is turned over, to expose the posterior pillar, and this is freed usually by blunt dissection. The superior pole is now enucleated from the superior tonsillar fossa and, in the majority of cases, the tonsil may then be rolled out of its bed without any more than blunt dissection. In very adherent glands one proceeds, first by well separating the pillars, with blunt dissection where possible, or by careful claspings with the dissecting scissors, until the tonsil is entirely freed from the pharyngeal wall.

Lymphatic Drainage of the Peritoneal Sac, by Wm. C. Woolsey.—Absorption of certain solid foreign material injected into the peritoneal sac occurs with marked rapidity; first, by a process of translocation, through the cells of the diaphragmatic mesothelium and later through the agency of leucocytes. Such solid foreign material having passed the peritoneal mesothelium is conveyed through the endomysial tracts throughout the diaphragmatic musculature to the lymphatic radicals on the pleural surface of the diaphragm, from these to the various

diaphragmatic gland groups to the costoxiphoid glands of Sappey, and thence through the retrosternal chain of lymphoid tissue to the subclavian vein or thoracic duct. Certain fluids injected into the peritoneal sac follow the same lymphatic absorption lines whether they coincidentally enter the blood stream directly or not. The tissues of the diaphragm take a distinctly active part in absorption from the peritoneal sac and other areas of parietal peritoneum function little if any in the lymphatic absorptive process. The postoperative postural treatment of pelvic peritonitis as advocated by Fowler has definite pathological foundation.

Postoperative Peritoneal Adhesions, by J. E. Sweet, R. H. Clancy, and H. L. Wilson.—The most practical method for limiting adhesions consists in the clear understanding of the operator that the peritoneum is not a structure which can be cut and sewn, but a single layer of delicate endothelial cells. The biologist obtains these cells for study by gently wiping the peritoneal surface with a gauze sponge and pressing it on a cover glass. Every wound of this layer of cells begins to heal by the fundamental process of adhesion formation—the outpouring of a plastic lymph.

ARCHIVES OF THE RÖNTGEN RAY.

April, 1915.

Radiographic Topography of the Head.—by Robert Knox and R. W. A. Salmond.—The following method, based on measurements made on the dry skull, has been worked out by the authors and is accurate for application to the various types of skull. A radiographic base line is drawn from the nasion, the midpoint of the suture between the frontal and nasal bones, through the centre of the external auditory meatus and continues to the midline at the back of the head. On this line three points are marked off, being respectively one third, one half and two thirds the distance from either end, the front end being the more convenient to measure from. Through these lines perpendiculars are drawn to the base line, dividing the head into four areas. On the same horizontal plane as the base line are found the lower part of the frontal sinus, the sphenoidal sinus, the apex of the petrous bone, the clivus of the sphenoid, the glenoid cavity and condyle of the lower jaw, the external auditory meatus, the jugular foramen and the mastoid process. At the intersecting point, one third of the distance from the front end is the zygomatic malar suture and this point corresponds in the interior with the front part of the sphenoid sinus. At the intersection, one half the distance from the front end, is the glenoid fossa and the condyle of the lower jaw, corresponding in the interior with the lower part of the dorsum sellæ and the apex of the petrous bone. At two thirds from the front end is the mastoid process and in the interior the curved portion of the lateral sinus. In using these lines the head may be either in the vertical or horizontal position, the sagittal suture being parallel to the plate. The side to be radiographed should be next to the plate. The tube should be centred over the base line of one side.

X Ray Investigation of the Colon, by James T. Case.—In colonic adhesions it can be determined whether the bowel is adherent to its surroundings.

the site of the adhesion and how far motility of the intestine can be restored. During screen examination the tube holder must be careful to be properly protected as the time of exposure is usually prolonged beyond the danger limit. Palpation may be carried out while the fluorescent screen is being used. In the diagnosis of intraabdominal tumors the Röntgen ray has been of service in showing the resulting dislocation of the colon. In tumors near the colon it is of particular importance. Chronic ulcerative tuberculosis can be diagnosed by the presence of strictures; in ileocecal tuberculosis Stierlin has found that the ileum and transverse colon contain bismuth while the cecum and the ascending colon are empty. This never occurs normally. Following a barium meal or clysm the appendix may fill. When filled, the presence of adhesions, kinks or involvement of neighboring viscera may be determined. Another point to be considered is the drainage of the appendix. If it drains poorly it may be considered a danger sign. In carcinoma of the large bowel the important findings are an exaggeration of colonic antiperistalsis; arrest in the ascent of the barium column when giving the barium enema; the coincidence of a palpable tumor with a point of hindrance to the barium meal or enema; a filling defect in the shadow of the barium filled colon and a marked ileac stasis when the cecum, ileocecal valve or first part of the ascending colon is affected.

SURGERY, GYNECOLOGY AND OBSTETRICS.

March, 1915.

Cancer of the Prostate, by E. S. Judd.—A general physical examination usually shows a healthy robust individual. Rectal examination may reveal a small prostate gland, or, if hypertrophy is associated with the cancer, the enlargement may be quite marked. If on palpation the surface of the prostate is rough with hard nodules, it is always suspicious since in the benign cases the prostates are nearly always smooth unless there is associated inflammation or calcareous deposits in the substance of the gland. In benign cases they are often lobulated though their surfaces are smooth. In cancer, if the surface is smooth, the prostate is very hard. It is sometimes impossible to discover malignancy, when it is associated with hypertrophy, or to distinguish malignancy from chronic inflammatory prostatitis. In six cases the gland was soft; adenomatous hypertrophy predominated and a cancer was not felt. In many cases a hard nodule could be felt in one lobe while the others showed no changes.

Gallstones in 1,066 Abdominal Sections, by Reuben Peterson.—Except when contraindicated by the condition of the patient or by the possibility of contaminating clean peritoneum, the gallbladder should always be palpated when the abdomen is opened for pelvic disease. Hence, the small abdominal incision should give way to one large enough to permit of thorough exploration of the abdominal cavity. Gallstones will be found incidental to pelvic disease in ten to fifteen per cent. of the cases. Their frequency will depend upon the ages of the patients more than upon the variety of the pelvic disease. As with gallstones in general, in women with or without pelvic disease, the older the

patient the more liable is she to have gallstones. Gallstones are much more common in women who have had children. When gallstones were not removed either because their mere presence is not thought to warrant their removal or because of the condition of the patient, thirty per cent. suffered subsequent attacks; as the writer has found 135 or 12.66 per cent. of his cases have had gallstones incidental to pelvic operations, he therefore advises that they be removed at the time if the patient's condition warrants.

Proceedings of Societies.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, March 15, 1915.

The President, Dr. THOMAS S. SOUTHWORTH, in the Chair.

The Relation of Arteriosclerosis to Ophthalmology, Neurology, and Surgery from the Viewpoint of the Internist.—Dr. LOUIS F. BISHOP read this paper, which is published in this issue of the JOURNAL.

Arteriosclerosis as Seen in the Eye.—Dr. WILBUR B. MARPLE read this paper, which appears in this issue of the JOURNAL.

The Field of Surgery in Arteriosclerosis.—Dr. JOSEPH B. BISSELL's paper is published in this issue of the JOURNAL.

Epistaxis in Arteriosclerosis.—Dr. CHARLES E. PERKINS's paper appears in this issue of the JOURNAL.

Arteriosclerosis with Relation to the Control of Uterine Hemorrhage.—Dr. WILLIAM P. HEALY's paper is published in this issue of the JOURNAL.

Arteriosclerosis in Its Relation to Life Insurance.—Dr. JOHN D. QUACKENBOS's paper is published in this issue of the JOURNAL.

Dr. REYNOLD WEBB WILCOX, in arteriosclerosis, recognized the interdependence between the general condition and the local condition; the former might be slight, the latter marked. For this reason, in his book, he had designated the affection usually known as chronic interstitial nephritis as chronic arterial nephritis. In some instances the general condition, arteriosclerosis, was marked, and in others, not. High blood pressure and arteriosclerosis were by no means synonymous or coextensive, and high blood pressure was not necessarily an accompaniment of advanced life. It was quite possible to have a low blood pressure in association with arteriosclerosis, as was shown by an investigation of 1,200 patients whose ages ranged from sixty-six to ninety-eight years. Whether or not they accepted Doctor Bishop's theory of the reaction of the body cells which became sensitized against certain proteins, they would all probably follow out the dictates of their palates and appetites. Personally, he was convinced that the matter of sugar tolerance was quite as important as the sensitization of the proteins. The sphygmomanometer was an instrument of precision, and bore the same relation to therapeutics as the clinical thermometer. The passing of high blood pressure as a fetish would be looked upon by the

physician with regret, but by the scientific internist with satisfaction.

Dr. BEVERLEY ROBINSON, after hearing such great consideration for high blood pressure and hardened arteries (arteriosclerosis), had diffidence in making a few counter remarks. Personally, he was rather tired of hearing of these things nowadays; like the exaggerated call to operate in appendicitis, like the furore as to the dangers of pulmonary tuberculosis, was this woful obsession, the latest thing in the popular mind. He was one of those who greeted with enthusiasm all real advances in medical science, provided that humanity and common sense governed their use and popularity; but when they found the sphygmomanometer applied to the victim's arm, in season and out of season, he was opposed. To be of any real service, this instrument must be applied with skill; besides, frequency of application was essential. It must be considered from a broad standpoint, so that a proper appreciation of its findings, as to diagnosis, prognosis, and indications for treatment, might result sanely and healthfully. Often it was applied when the patient was overworked, with numerous worries and anxieties, just after a meal, and with the patient in the upright posture. Again the blood pressure was taken in bed, on an empty stomach, and after the night's sleep. Could the report of the mercury be the same under these differing conditions? Again, he would like for a moment to consider overspecialization, which was running riot today, and which was a positive curse to ordinary happiness and well being. Many a man and woman had got along very well until they had fallen into the hands of some modern physician, with his too advanced ideas, and not a great deal of broad, useful knowledge to guide him. He had adopted a specialty very shortly after getting his diploma, mainly because he wished to be quickly in the spot light, because he did not want to struggle along in general practice, with little remuneration and few thanks, and also because he proposed to make "easy money," and a lot of it. Of course, there was need of good men in specialties, and when a man like the present president of this association, his own former house physician at St. Luke's, had achieved his position as pediatrician by years of hard, devoted work, and thus had acquired an all around knowledge and experience, no one applauded the fact more than himself. But the other side of the medal should be seen. Today there was not a little claptrap visible in some offices, which caught the eye and captivated the microcephalic brain of the unwary patient, who knew little, and like the moth was caught by the bright, deadly light of the candle.

As to the matter of treatment, they could change bad habits; they could put a veto upon excessive eating and drinking, get the patient to stop worrying, and cry a halt to overwork. They should not be in too great a hurry radically to change the habits of a lifetime, even though the patient had passed fifty years of age. They could, however, limit the number of drinks, cigars, and courses at meals. They could say emphatically, "go to bed early; take a rest. You must occasionally go on a trip and live in the open—in the woods or at the seashore, as you prefer, or as the season permits or

attracts you." As to drugs, they might give the iodides and the nitrites for a time, and while unpleasant or threatening symptoms prevailed; but if, after a while, blood pressure still remained high, they should stop the drugs and regard the hardened arteries and high blood pressure as Nature's protection. Otherwise, what did they see? A lowered heart impulse, a feeble, wavering pulse, a loss of snap, and introspective preoccupation which boded no good. Not very long ago he had entered the room of a friend who was suffering from an aneurysm of the thoracic aorta. Almost daily his blood pressure was being taken, and apparently with no other result than to make him the more keenly apprehensive as he watched the ups and downs of the mercury column. Did not this patient in very truth die daily, and before the actual end, which, indeed, came very soon? Was this science? Was this immunity? It was neither. So far as possible, scientific instruments, especially those which were still new, and the drawbacks of which were not yet thoroughly known, should be kept in the hands of wise men and in hospital wards; and not for the purpose of adding money to an already swollen bank account. There was too much unnecessary surgery.

Dr. THEODORE K. TUTHILL, from clinical observation and physiological study, was more and more inclined to accept the following five propositions as a working basis for the care and treatment of cases of arteriosclerosis: First, arteriosclerosis was secondary to increased blood pressure. Second, blood pressure increase was due to a toxin or toxins. Third, blood pressure increase was a physiological process, conservative in character and necessary to conserve physiological function when toxins were present. Fourth, blood pressure increase *per se* called for no treatment, except rarely in the presence of a threatened crisis, and then only temporarily. Fifth, elimination of the existing toxins through the body drainage system, and correction of faulty nutrition by an adjusted dietary, constituted in general the best treatment and management of arteriosclerosis. The first proposition he knew would raise the question, Why did they find arteriosclerosis associated at times with low blood pressure? To this he would answer that when such was the case, the patient had reached the secondary stage of the disease, which was characterized by low blood pressure, and was in the greatest danger.

Dr. RICHARD COLE NEWTON, of Montclair, N. J., believed that all persons were more or less toxic, and Bishop's anaphylaxis theory was correct. There was no reason why people should not keep fit, for, as Parkes had said, training was only an expression of a proper method of life. Overeating was more responsible for general ill health than drinking wine or spirits. In the country, living conditions were more favorable than in the city. Not only was there more fresh air, but the people ate less rich food, and led a generally simpler life. He had for some years been a vegetarian, but he now felt much better off for a little meat. For most persons a certain amount of meat was desirable.

Dr. VICTOR A. ROBERTSON was in entire accord with the views expressed by Doctor Healy. It had

been his fortune to see several instances of arteriosclerosis affecting the uterus, and in these the hemorrhage had been profuse, not responding to drug treatment, and curettage, as a last resource, had been attended with only temporary success. In two of his cases it had been necessary to resort to hysterectomy on account of intractable bleeding. This gave an opportunity for microscopical examination of the removed organs, and there were found pathological changes in the walls of the uterine arteries. These were much thickened, their lumen was diminished, and the muscular coat was replaced by connective tissue; consequently contractility was much impaired. In addition, there was a degeneration of the muscularis of the uterus, with a marked loss of the muscle elements and an increase of connective tissue in the shape of bands running through the uterine walls. The diagnosis in all of these cases had been reached by a process of exclusion—cancer, fibroids, uterine polyp, and inflammatory conditions being considered. Bimanual examination revealed a moderately enlarged, symmetrical uterus of a density distinctly harder than normal. The ages of these patients ranged from thirty-eight to fifty years, and some of them had passed the time of the physiological menopause with no cessation of the hemorrhage. Two were multiparæ, and four others virgins. In none was arteriosclerosis discoverable in other parts of the body.

Dr. EDWARD E. CORNWALL was not in sympathy with the tendency to belittle the importance of arteriosclerosis and of careful examination of patients for its signs and symptoms. While too much was often made of some of the latter, the morbid condition merited the gravest consideration. In speaking of this condition, he preferred to use the term cardiovascular disease, because arteriosclerosis pointed to only one of the three principal pathological foci around which the clinical manifestations of the condition clustered, so to speak; the other two being chronic myocardial degeneration and chronic nephritis. Cardiovascular disease, in spite of the extent and diversity of its pathology and clinical symptoms, possessed a distinct unity, which appeared particularly in its etiology and different manifestations. Looked at broadly, the disease consisted of a wearing out of the great apparatus for supplying to the tissues material for metabolism. Its causation was to be found in heredity, physical and mental overstrain, and poisons, namely, those of the infectious diseases, those directly introduced into the body, and those manufactured in the alimentary canal, by microbic activity, and in the organs and tissues of the body itself. The general treatment of the disease was prophylactic and palliative. Those born with a cardiovascular apparatus of inferior material should early recognize the fact and live in such a manner as to subject this apparatus to less than ordinary strain and toxic irritation: after the disease was established, careful life and an easy diet were essential. The most effective element in treatment was the regulation of the diet, by limiting the amount of food to the actual needs of the body and by selecting articles easy of digestion, free from purins, and insusceptible to fermentative and putrefactive changes in the alimentary canal.

Dr. WILLIAM R. BROUGHTON used the sphygmomanometer almost every day. In his practice he observed two classes of cases. In the first class the patient came for distinct symptoms of arteriosclerosis which affected the vision, such as retinal hemorrhage, and these cases were already known to their physician. In the second class the disease was in its incipency and the signs of arterial trouble were often doubtful, even to the ophthalmologist. Such cases usually appeared in patients who came to have their eyes examined for glasses and who had no suspicion of trouble. In cases where there was any suspicion of arterial change he employed the sphygmomanometer without unnecessarily alarming the patient, and if the amount of blood pressure appeared to confirm the diagnosis of arteriosclerosis, he immediately communicated with the family physician. As almost every person over fifty years old had to come to the ophthalmologist to have his or her eyes examined for glasses, his responsibility in this matter was very great and a routine examination of the fundus should be made. By taking heed of the warning afforded by an early ophthalmoscopic examination, it was possible to save many years of useful life.

Mr. JOHN J. CONNELLAN, of the Higgins Laboratory, said that much had been said relative to the urea nitrogen estimation and renal function tests. He believed it was the consensus, which had been further backed up by autopsy findings in the Massachusetts General Hospital, that the different function tests now advocated were of little value. In the urea nitrogen estimation many factors went to make it of little value. The intake of solids and of liquids had an all important bearing. For instance, in a patient in bed on a low protein diet, they would invariably find that the urea nitrogen estimation was low in comparison with the solid content. A foreign investigator had recently shown that the best way to estimate whether retention existed or not was to examine the blood serum for indoxyl potassium sulphate. It had been shown that no indoxyl potassium sulphate could be demonstrated in serum in nonretention cases, but let retention exist, and this chemical compound could be demonstrated in small amounts. Referring to bacterial toxins as the cause of arteriosclerosis, in time it would be found that the different sugars bore an all important relationship. It was a curious phenomenon that colon bacilli, the normal inhabitants of the intestines, would not grow or generate gas on common table sugar (saccharose), whereas they prospered and grew on other sugars, such as maltose, dextrose, and lactose. The human stool was approximately three fifths to four fifths bacteria of numerous types. Where the different toxin producing types were present, the best results could be obtained in their elimination by cutting out foods on which they prospered. However, no real or scientific method of dieting could be advocated until they had separated the different intestinal types of bacteria in their relationship to growing in different sugar bases. Much had been written recently as to the different types of kidney diseases, but he believed that all kidney diseases were of toxic origin, following either an infectious disease or long continued absorption of toxins from the intestines. The only other types

were those in which a calculus existed, or such as colon or tuberculous infections of the kidney. Many times had he noticed a so called renal irritation of a marked type showing casts and albumin, with or without a few red blood cells, from no apparent cause, but when the intestines had been thoroughly cleaned out, the renal irritation ceased to exist.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Cystoscopy and Urethroscopy for General Practitioners.

By BRANSFORD LEWIS, B. S., M. D., F. A. C. S., Professor of Genitourinary Surgery, Medical Department of St. Louis University, St. Louis, Mo., Genitourinary Surgeon to St. John's Hospital, etc., and ERNEST G. MARK, A. B., M. D., F. A. C. S., Professor of Genitourinary and Venereal Diseases in the University Medical College, Kansas City, Mo., etc. With Chapter by WILLIAM F. BRAASCH, M. D., Attending Physician to the Mayo Clinic, Rochester, Minn. With 113 Illustrations, 23 of Which are Printed in Colors. Philadelphia: P. Blakiston's Son & Co., 1915. Pp. xiii-238. (Price, \$4.50.)

We are glad to greet this second "made in the U. S. A." cystoscopy; the first, by Pilcher, came out some years ago. The first portion of the book, by Lewis, is devoted to a very complete history of cystoscopy. Following this is the technic of simple and operative cystoscopy with chapters on pathological conditions of the bladder. Apart from a brief mention of the diagnosis of renal lesions in the chapters on ureteropyelography, there is curiously enough absolutely no mention in this book of this most important part of cystoscopy. The chapter on technic in cystoscopy is almost too complete in places, if such a thing can be; for instance (page 53), it seems a long time since anyone has used the Casper slide bar cystoscope for ureter catheterization. The pictures of the technic employed are excellent; those of pathological conditions of the bladder are very few. The chapter on ureteropyelography by Braasch is good; complete as far as the kidneys and ureters go, and the pictures are usually fine. Nothing is said about radiographs of the bladder which have proved of so much value in the diagnosis of diverticula, etc. In the chapters on urethroscopy, the author has completely covered the development of the urethroscope and the technic of air inflation urethroscopy. Until reading this book we had believed that air inflation urethroscopy was a thing of the past. It is both dangerous and painful compared with water dilatation. Pathological conditions of the urethra are fully covered and there is a chapter on operative urethroscopy; all, however, by means of the air dilatation urethroscope.

The Further Evolution of Man. A Study from Observed Phenomena. By W. HALL CALVERT, M. D. New York, Chicago, Toronto, London, and Edinburgh, Fleming H. Revell Company. Pp. 324.

The average medical reader of Doctor Calvert's essay on evolution will have to brush up his knowledge of the arguments of the protagonists of that great theory; the doctor is under the impression that science is through with Darwin and his school, especially since Paullin and Fabre published their studies. The pleasing habit of the male animal of devouring the young is advanced anew by the author as a sufficient factor in keeping down the surplus of a given species; yet he makes the astonishing admission that the first effect of a diminished food supply is an increase in the number of young. This indicates, not only strange generosity on the part of the animal father, but a scientific appreciation of his duty to control his appetite. By resolutely avoiding all the arguments *pro* and insisting on those *contra*, Doctor Calvert has thus readily persuaded himself that the theory of evolution is to be discarded. There is much to be said, perhaps, for the author's belief

in the greater force of environment compared to heredity in influencing the child. Darwin's evolution out of the way, the author advances his own kind, a spiritual evolution of man, based on the Christian virtues as announced by Christ and Paul. We think Paul would be much astonished to learn that he was an evolutionist; he, who expected the end of the world within fifty or a hundred years. Doctor Calvert thinks that nations need not perish, as all the older have done, if they will avoid the mistakes of the latter, militarism, aristocracy, etc. He speaks of the charming *rapprochement* between capital and labor; any of our friends who read the recent answers of American capitalists to the questions of Mr. Walsh, will be amused. He also believes in the universal minimum wage, which capital could, we think, meet effectively with a universal minimum price. The author, in another passage, rests his argument on the common mistranslation of the angelic salutation to the shepherds, which is, in the original, "peace on earth to men of good will." Finally, he states that "with the advance of spiritual evolution has come the idea of the Divine Immanence." This may be true, but it is not Christianity, but the purest Spinoza pantheism. Altogether, we fear that with the doctor the wish has been father to the thought. We should be delighted if he was right, but nothing seems plainer at present, in countries at peace at all events, than persistent cleavage between rich and poor; part of a continuous change from an incoherent homogeneity to a coherent heterogeneity, which is the essence of Darwinian evolution as neatly put by Spencer. We are pained to note (page 201) the disagreeable and unnecessary "evolute."

Painless Childbirth. A General Survey of all Painless Methods with Special Stress on "Twilight Sleep" and Its Extension to America. By MARGUERITE TRACY and MARY BOYD. With Nineteen Illustrations from Photographs. New York: Frederick A. Stokes Company, 1915. Pp. xxxiii-316. (Price, \$1.50.)

In this volume the authors frankly undertake a propaganda for the purpose of bringing forward the claims of "twilight sleep" or as they prefer to call it "painless childbirth." They proceed on the principle that all physicians are actively opposed to the method and that the only way for the women of this country to bring about its adoption is by the force of public opinion. From that point of view the book is interesting and indeed valuable because when there is a sufficient demand for any one thing, some way will be found to satisfy the want. The important factor, however, that must be considered is whether or not the demand can be satisfied properly at the moment or whether there should be delay till more information and experience are obtained.

In addition to the scopolamine morphine method, a chapter is given to a discussion of the use of analgesine as employed in France. Three accounts by women who have been delivered by the Freiburg method and three articles by Krönig and Gauss complete the book. The latter papers contain a description of the technic and a review of the results obtained.

The evidence indicates that this method, when properly carried out, in a certain proportion of cases, accomplishes much in making childbirth less of a horror than formerly was thought unavoidable; but the authors must not expect that it will be adopted generally without further trial.

Lectures on the Heart. Comprising the Herter Lectures (Baltimore); A Harvey Lecture (New York), and an Address to the Faculty of Medicine at McGill University (Montreal). By THOMAS LEWIS, M. D., F. R. C. P., D. Sc., Physician City of London Hospital, Assistant Physician and Lecturer in Cardiac Pathology, University College Hospital, London. New York: Paul Hoeber, 1915. Pp. 124. (Price, \$2.)

This volume contains five lectures delivered by the author during his recent visit to this country. The lectures deal with the following subjects: The excitation wave in the heart; the method of electrocardiography exemplified; the relation of auricular systole to heart sounds and murmurs; observations and dyspnea, with especial reference to acidosis; observations upon cardiac syncope. Those who heard the lectures, and those who did not have that privilege, will alike appreciate being able to read and study them at their leisure. The book is of decided value, both to the

student of physiology and to the clinician; it is of handy size, and should, for a time at least, be the companion of every physician.

Practical Tropical Sanitation. A Manual for Sanitary Inspectors and Others Interested in the Prevention of Disease in Tropical and Sub-Tropical Countries. By W. ALEX. MUIRHEAD, Staff Sergeant, Royal Army Medical Corps; Formerly on the Staff of the Sanitary Officer, West African Command, Sierra Leone; Now an Assistant Instructor at the School of Army Sanitation, Aldershot; etc. With Illustrations. New York: E. P. Dutton & Co., 1915. Pp. xv-288. (Price, \$3.50.)

We have read the contents of this book with pleasure, and have naught but praise to offer. The simplicity of the language makes it a book which can be perused with profit not only by the aspirant for tropical sanitary appointments, but also by the layman who is contemplating a trip to the tropics, or one who intends making his residence there. The section on the mosquito is wonderfully complete, and the illustrations are very instructive.

Interclinical Notes.

The *Survey* for May 8, 1915 pays worthy tribute to Dr. Abraham Jacobi, taking the banquet recently tendered to the honored practitioner as the text on which to embroider appreciations from such men as S. Weir Mitchell, Sir William Osler, and Carl Schurz. Said this last: "I have known and loved him as a man who may be depended on in every respect and in all circumstances."

* * *

The typewriter girl who made Sir Berkeley Moynihan incriminate "slowness" of the imagination as a deadly sin, has our thanks for injecting a smile into a dull piece of routine.

* * *

The editorial comments of the *Outlook* for May 5th on the Harrison antinarcotic law, favorable in the main, are premature we think. The true test will come when relapses are due, and it will be interesting to see what form they will take in the absence of drugs.

* * *

The picturesquely handsome *Nurse* for May takes the reader pretty well around the world; there is the beginning of a series of papers on dangerous drugs, an article on exercise and massage, one on nursing methods, excellent practical suggestions, some of them illustrated, the usual good and original department of diet. There is a discussion of cancer in salmon—a fish, by the way, now produced and brought up under artificial and highly civilized conditions—which may stimulate profitable thinking on the part of some clever nurse. The doctor deprived of trained nurses might do worse than commend this excellent magazine to any women in his community who care for the sick, *con amore* if not very scientifically.

* * *

Women who are shrilly demanding unconsciousness during childbirth, and making strong point of the apparent inability of men to sympathize with them, forget what the average husband goes through when he is awaiting the verdict of the accoucheur. Fifty years ago, he might have slipped away to the nearest saloon with a few cronies and acquired a satisfying twilight sleep of his own; that would be considered outrageous nowadays. Katherine Fuller Gerould makes the point in her story, *The Miracle*: "A queer revenge women have wrested from civilization—that the husband must watch their pangs, step by step, in his helpless imaginings, so that the ancient immunity of the male becomes little more than a dishonest slogan in a sex war."

* * *

An anxious inquirer desires to know what can be done with the 30,000 illegitimate war babies expected shortly in Great Britain. Why, they may be brought to the United States and begin early to make a living by doing seventy-two hours' work weekly in some Eastern cannery. At the age of eighteen or twenty years, they can move West to

Pittsburgh and do eighty-four hours a week in the steel industry. Owing to the limited time at our disposal for the discussion of economic problems, we hope our friends will submit in the future only the more difficult ones.

* * *

War and Drink, by James Davenport Whelpley, is one of the most striking features of the *May Century*; the strange part that drink plays in English life is fully explained and makes startling reading. Poland's story, by Judson C. Welliver, follows England's in ominous juxtaposition, for it was an aristocracy that ruined Poland. Let us see that one doesn't get our Uncle Samuel. William Winter, who discovered genius in Irving and Mansfield, has now found the same rare endowment in E. H. Sothern; there are certainly points of similarity among the three, an ability to "get there" financially for instance; but we know many better players still on salary.

Meetings of Local Medical Societies.

MONDAY, May 17th.—New York Academy of Medicine (Section in Ophthalmology); Yorkville Medical Society; Medical Association of the Greater City of New York; Elmira Clinical Society.

TUESDAY, May 18th.—New York Academy of Medicine (Section in Medicine); Tompkins County Medical Society; Medical Society of the County of Monroe; Buffalo Academy of Medicine (Section in Obstetrics and Gynecology); Tri-Professional Medical Society of New York; Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburgh Medical Association; Oswego Academy of Medicine; Medical Society of the County of Westchester.

WEDNESDAY, May 19th.—New York Academy of Medicine (Section in Genitourinary Diseases); Alumni Association of City Hospital, New York; Schenectady Academy of Medicine; Women's Medical Association of New York City (New York Academy of Medicine, annual); Medico-Legal Society, New York; Buffalo Medical Club (annual); Northwestern Medical and Surgical Society of New York.

THURSDAY, May 20th.—New York Academy of Medicine (stated); Auburn City Medical Society; Geneva Medical Society; German Medical Society, Brooklyn; Æsculapian Club of Buffalo; New York Celtic Medical Society.

FRIDAY, May 21st.—New York Academy of Medicine (Section in Orthopedic Surgery); Mount Vernon Medical Society (annual); Clinical Society of the New York Post-Graduate Medical School and Hospital; New York Microscopical Society.

SATURDAY, May 22d.—New York Medical and Surgical Society; West End Medical Society; Lenox Medical and Surgical Society (annual).

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending May 5, 1915

Carter, Henry R., Assistant Surgeon General. Directed to proceed to various points in Alabama and South Carolina to continue the investigations of the influence of impounded waters on the health of the community; granted one day's leave of absence, May 6, 1915. **Cobb**, J. O., Surgeon. Directed to proceed, or to detail a junior officer on like duty, to various points in Wisconsin, Michigan, Minnesota, Ohio, Pennsylvania, and Kentucky, relative to physical examinations for the United States Coast Guard. **Collins**, G. L., Passed Assistant Surgeon. Granted one day's leave of absence en route to Washington, D. C. **Foster**, M. H., Surgeon. Directed to attend the meeting of the American Association

for Promoting Hygiene and Public Baths in New York city, May 11, 1915. **Grubbs**, S. B., Surgeon. Granted three days' leave of absence from April 28, 1915, under paragraph 193, Service Regulations. **Hoskins**, J. K., Sanitary Engineer. Directed to proceed to Trenton, N. J., and such other places in New Jersey and adjoining States as may be necessary to assist in making a sanitary reconnaissance of the watersheds of rivers flowing through or bordering on New Jersey. **Jones**, W. M., Assistant Surgeon. Directed to proceed to various points in California, Oregon, and Washington, relative to physical examinations for the United States Coast Guard. **Marshall**, Edward R., Passed Assistant Surgeon. Granted twenty-one days' leave of absence, from May 11, 1915. **Mullan**, E. H., Passed Assistant Surgeon. Directed to attend a meeting of the National Association for the Study of Epilepsy and the American Medico-Psychological Association at Fort Monroe, Va., May 10-14, 1915. **Preble**, Paul, Passed Assistant Surgeon. Directed to proceed to Trenton, N. J., and such other places in New Jersey and adjoining States as may be necessary to make a sanitary reconnaissance of the watershed of rivers flowing through or bordering on New Jersey. **Safford**, M. Victor, Assistant Surgeon. Directed to proceed to New Bedford, Mass., to inspect the medical examination of arriving aliens at that port. **Schereschewsky**, J. W., Surgeon. Directed to proceed to Pittsburgh, Pa., about May 1, 1915, for the purpose of organizing the work of investigations of occupational diseases in that city. **Scott**, E. W., Assistant Surgeon. Directed to proceed to various points in New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, and Maine, relative to physical examinations for the United States Coast Guard. **Sweet**, E. H., Passed Assistant Surgeon. Relieved from further duty in the Hygienic Laboratory, effective April 30, 1915, and directed to report at the Bureau for temporary duty. **Treadway**, W. L., Assistant Surgeon. Directed to rejoin station at Ellis Island, N. Y., stopping en route at Faribault, Minn., for the purpose of visiting the school for the feeble-minded, and observing the methods in use. **Von Ezdorf**, R. H., Surgeon. Directed to attend the meeting of the Southern Sociological Congress at Houston, Texas, May 8-11, 1915. **Waring**, C. H., Assistant Surgeon. Directed to proceed from time to time to the Rankin State Farm, Greenfield, Miss., to inspect methods and system of study of pellagra, and to co-operate in experiments made in regard to the ethnology of the disease. **White**, J. H., Senior Surgeon. Granted five days' leave of absence from May 5, 1915.

Boards Convened.

Boards of medical officers convened to meet on Monday, May 10, 1915, for the physical examination of candidates for the position of district superintendent in the Coast Guard as follows: Marine Hospital, Detroit, Mich. Detail for the board: Senior Surgeon H. W. Austin, chairman; Surgeon H. W. Wickes, recorder. Marine Hospital, Stapleton, N. Y. Detail for the board: Senior Surgeon George W. Stoner, chairman; Passed Assistant Surgeon C. P. Knight, recorder. Marine Hospital Office, Philadelphia. Detail for the board: Senior Surgeon Fairfax Irwin, chairman; Assistant Surgeon Louis Schwartz, recorder. Marine Hospital, Chicago, Ill. Detail for the board: Surgeon J. O. Cobb, chairman; Passed Assistant Surgeon J. M. Gillespie, recorder. Marine Hospital, Chelsea, Mass. Detail for the board: Surgeon B. W. Brown, chairman; Acting Assistant Surgeon B. P. Stookey, recorder. Marine Hospital, Portland, Maine. Detail for the board: Surgeon H. S. Mathewson, chairman; Acting Assistant Surgeon A. F. Stuart, recorder. Marine Hospital Office, Galveston, Texas. Detail for the board: Surgeon L. P. H. Bahrenburg, chairman; Surgeon R. L. Wilson, recorder. Marine Hospital Office, Providence, R. I. Detail for the board: Passed Assistant Surgeon F. R. Marshall, chairman; Acting Assistant Surgeon M. W. Houghton, recorder. Marine Hospital, Savannah, Ga. Detail for the board: Passed Assistant Surgeon J. R. Ridlon, chairman; Acting Assistant Surgeon A. B. Cleborne, recorder. Marine Hospital Office, Norfolk, Va. Detail for the board: Assistant Surgeon L. L. Williams, Jr., chairman; Acting Assistant Surgeon R. W. Browne, recorder.

Board of medical officers convened to meet at Newbern, N. C., May 3, 1915, for the purpose of making a physical

examination of an officer of the Coast Guard to determine his fitness for promotion. Detail for the board: Acting Assistant Surgeon R. S. Primrose, chairman; Acting Assistant Surgeon R. D. Jones, recorder.

Board of medical officers convened to meet at the marine hospital, Chicago, at the call of the chairman, for the re-examination of an alien. Detail for the board: Surgeon J. O. Cobb, chairman; Passed Assistant Surgeon J. M. Gillespie, member; Assistant Surgeon C. L. Williams, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending May 8, 1915:

Powell, William A., Captain, Medical Corps. Granted one month's leave of absence effective upon his relief from treatment at the Letterman General Hospital. **Schurmeier**, Harry L., First Lieutenant, Medical Reserve Corps. Granted leave of absence for one month and five days (with permission to apply for an extension of one month. **Willcox**, Charles, Lieutenant Colonel, Medical Corps. Granted two months' leave of absence, effective about July 1, 1915. **Worthington**, George B., First Lieutenant, Medical Reserve Corps. Ordered to active duty, to take effect at such time as he shall be notified by the commanding officer, Signal Corps Aviation School, San Diego, Cal., that his services are required.

Births, Marriages, and Deaths.

Married.

Abbott—Gammon.—In Bethel, Me., on Sunday, May 2d, Dr. Hiram Abbott, of Rumford Point, Me., and Mrs. Mary E. Gammon. **Cooley—Portz.**—In Reading Pa., on Saturday, May 1st, Dr. David Barnes Cooley and Miss Ida Portz. **Goodall—Hollander.**—In Amesbury, Mass., on Thursday, April 29th, Dr. Edwin Baker Goodall, of Haverhill, Mass., and Miss Carrie Hollander. **Lockwood—Curry.**—In Chicago, on Saturday, April 24th, Dr. Richard Charles Lockwood, of Kankakee, Ill., and Miss Mary Elsie Curry. **Morrison—Trabue.**—In Louisville, Ky., on Thursday, April 29th, Dr. John Rowan Morrison and Miss Lucinda Cochran Trabue. **Ryan—Gilbert.**—In New York, on Monday, April 26th, Dr. Harry Richard Ryan, of Rutland, Vt., and Miss Myrtle Adelaide Gilbert. **Williams—Daley.**—In Chicago, Ill., on Monday, May 3d, Dr. Edward Williams and Miss Celia Daley.

Died.

Bauman.—In Souderton, Pa., on Friday, April 30th, Dr. Joshua E. Bauman, of Telford, Pa., aged seventy years. **Bissell.**—In Baltimore, Md., on Wednesday, April 28th, Dr. Arthur F. Bissell, aged eighty-eight years. **Brown.**—In Philadelphia, on Friday, April 30th, Dr. Isaac W. Brown, aged thirty-two years. **Clark.**—In Providence, R. I., on Monday, April 26th, Dr. Franklin C. Clark, aged sixty-seven years. **Clement.**—In Groveport, Ohio, on Friday, April 30th, Dr. Charles R. Clement, aged sixty-three years. **Cooke.**—In Barlow, Ohio, on Monday, April 26th, Dr. Edward P. Cooke, aged sixty years. **Foote.**—In Potsdam, N. Y., on Sunday, March 28th, Dr. J. J. Foote, aged forty-eight years. **Fuller.**—In Brooklyn, N. Y., on Sunday, May 2d, Dr. Daniel Augustus Fuller. **Hill.**—In Keene, N. H., on Friday, April 30th, Dr. Gardner Caleb Hill, aged eighty-four years. **Hutchinson.**—In Minneapolis, Minn., on Saturday, April 24th, Dr. W. F. Hutchinson, aged seventy years. **Rice.**—In Buffalo, N. Y., on Saturday, May 1st, Dr. William B. Rice, of Lockport, N. Y., aged eighty-seven years. **Shriner.**—In Philadelphia, on Sunday, May 2d, Dr. Thomas Shriner, aged seventy-two years. **Terry.**—In Matson Hill, Lyme, Conn., on Sunday, May 2d, Dr. James L. Terry. **Voorhees.**—In Brooklyn, N. Y., on Saturday, May 1st, Dr. Sherman Voorhees, aged forty-eight years. **White.**—In Somerville, Mass., on Wednesday, April 28th, Dr. Emory L. White, aged sixty-seven years. **Wood.**—In Philadelphia, on Wednesday, April 28th, Dr. Marmaduke Wood.

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WHOLE No. 1903.

Lectures and Addresses.

THE DUTY OF THE MEDICAL PROFESSION IN REGARD TO STREET CONDITIONS.*

By B. SACHS, M. D.,
New York.

It augurs well for the future that in this course of lectures or conferences on the prevention of disease, first place has been given to the influence of street conditions on public health. To those of us who have given some attention and a little study to this subject, there is now faint hope that the public opinion of this city will be stimulated so as to do away with public indifference.

Does the public realize the unsanitary condition of our streets? If it is aware of the unsanitary condition, there is some reason to hope that the movement toward cleaner streets will go on so rapidly that before long we shall have very much better conditions. The conditions as they are must be improved and they will be improved if the demand for cleaner streets is insistent enough. We ask the help of the medical profession particularly to create this public sentiment in favor of cleaner streets, not only because of the fact that the physicians are the proper guardians of public health, but because through the very character of their work physicians themselves can easily ascertain the facts; they can in their daily routine work see the ill effects of the improper care of the streets, and they are peculiarly fitted to impress upon thousands of households in all classes of society throughout this city the importance of outdoor cleanliness. We have a further duty in the way of setting an example for the rest of the country. Whatever New York does, is bound sooner or later to be copied by other cities. We are all aware of the fact that more than twenty years ago it was Colonel Waring who instituted a series of very marked changes in the care of the streets and for a time the streets were better taken care of in this city because of his influence. Many of the methods which he tried to inculcate have been forgotten or neglected, and today the white uniform of the street cleaner is about the only relic of the régime to which at the time we were so much devoted. Our present administration, and particularly Mr. Featherston, who is at the head of the street cleaning department, desire to bring about a distinct advance,

and they should have the ready support of all citizens.

New York has had many special problems. It has had a special traffic problem which it has solved brilliantly and it has established a method of regulating traffic which is now copied the world over or at least attempts are made to copy it. We have had a fire problem, and we managed to cope with that, and, I think, in a thoroughly satisfactory way. The police department surely has had problems of its own, and in spite of everything that has been said, it has responded to every call, and, as evidence of its efficiency I think we all feel that we live in an entirely safe community. The health department of New York city, in its attempt to combat the white plague, has won the admiration of many. The educational problems that we have had here, we met in a splendid fashion, and our public school system manages to impart an excellent training to hundreds and thousands of children in our mixed population and instills a proper appreciation in them of what a democracy really is and should be.

Why then, I ask, is the problem of cleaning the city streets such a baffling one? The answer is that there are two distinct reasons. The first reason, I think, is that the people have been entirely indifferent to the appearance of the streets, and the second reason is that the street cleaning problem is not a problem that concerns any one department of the city government, but many. The streets cannot be kept clean unless there is distinct cooperation, and the cooperation of all departments of the city administration is necessary.

About a year ago the Public Health, Hospital, and Budget Committee—as in most things medical, the budget is the least important part—took up the question of the condition of New York streets and appointed a subcommittee consisting of Dr. Robert J. Carlisle and myself, and later Dr. John Rogers and Dr. Thomas H. Hastings were added, and this committee had the duty of investigating the condition of the New York city streets and reporting upon this condition, and also had the further duty of recommending such changes as we thought absolutely necessary. This report was then submitted to the academy and went through a preliminary process of revision, and after a number of months it was finally forwarded to Commissioner Featherston of the street cleaning department, to his Honor, the Mayor, and to the various heads of city departments. We feel that there is a distinct desire on the part of the city to bring about these changes, and in doing so we want to be helpful, and the academy is not disposed to

*Lecture delivered at the Academy of Medicine, Tuesday evening, January 5, 1915, at a series of lectures on the Influence of Street Conditions on Public Health.

criticize the city administration, but to call attention to such defects as come to its notice and ask the various heads of departments if these defects cannot in some way be overcome.

Now this report, which I do not intend to cite in full, contains a number of points to which I should like to call attention. We found the prevailing street cleaning methods antiquated, expensive, and unsatisfactory. Dustless sweeping should and must be enforced. We urged liberal flushing with water and a more general use of machine sweepers. I am here reminded of the story that was told recently of a Southern lady who reprimanded her maid and told her that she was not cleaning the rooms properly, when the maid said to her, "Missus, what is there about dust that makes you hate it so?" Now you may have a right to ask what makes us physicians hate it so. We know that dust in the streets is the worst enemy that the citizens of this city have, and for this very reason—I shall try to go into as few medical details as possible—that dust harbors disease germs, and that practically tells the entire story. With the dust disease germs enter; we not only breathe contaminated air, but we have our food contaminated by it, and therein lies the great danger of dust. We cannot expect to get entirely rid of dust, but we do expect that dust will be minimized, and for that reason in sweeping we want as little dust spread as possible during the sweeping process. I have here a pamphlet which was published a number of years ago, in 1911, by Dr. Van Valzah Hayes, who has lately been added to the subcommittee, and it simply proves that one individual alone can accomplish nothing. In a matter of this sort you can accomplish results only if opinions are backed by public sentiment. Doctor Hayes did his work very well, and, in his pamphlet, for instance, he stated:

Sixteen years ago, Dr. T. Mitchell Prudden vividly described the dangers of dust and said: "The number of living germs which the New York citizen is liable to be forced to take into his body, when the streets are dry and the wind blowing, or when the dry filth is being stirred up by the diabolically careless procedures of the present street cleaning fiends, it would be a thankless task to tell." Hayes reported interesting tests made by means of culture plates three and three quarter inches in diameter which were exposed for five minutes in different parts of New York. It was found that the number of living germs settling on the plates in the different parts of the city were as follows: 1. Central Park, dust blowing from an adjacent street, 499; 2. Union Square, 214; 3. private house, 34; 4. large retail dry goods store, 199; 5. Broadway and Thirty-fifth Street, 941; street in the process of being cleaned by the street cleaning department, 5,810.

Now these figures are interesting as showing what the dusty street cleaning process means. These are not innocent germs that are carried about in this way. We know, for instance, that the dust carries the bacilli of tuberculosis. In fact, another author was right, who, in studying up this same subject, stated (Dr. I. Fisher), "when the public makes up its mind no longer to endure impure milk and impure air, life will lengthen eight years and probably a great deal more." He also states that a very large percentage of the enormous death rate due to tuberculosis in the city, would be considerably curtailed if this matter of street dust was minimized. Now these are not figures which we are simply trying to frighten people with; they are the facts of the case.

In addition to the germs of tuberculosis, the city dust contains the germs of diphtheria, of glanders, of anthrax, of typhoid fever, etc. If we but stop to think for a moment what the scattering of such dust means to the new market places that have been recently created, we shall understand that unless this matter is watched carefully, the conditions will soon become alarming. Moreover, I am personally convinced of this, that there is a probability that the spinal paralysis of children, which all know appeared in epidemic form here in this city some years ago, is also a disease which is taken in through the respiratory tract. We also have some reason to think that this disease is spread largely through the agency of the house and stable fly. The house and stable fly has its very best breeding place in the garbage heap, so that you can see that it is very easy to explain why so many of these diseases can be increased and propagated through the imperfect condition of the streets.

I was asked by the commissioner, "What is a clean street?" I told him at the time, rather hurriedly, that I thought it was a street free from filth, but I think from a medical point of view we can give a rather different definition and that is that a clean street from our point of view is a street with a minimum amount of disease germs. But it is simply stated in this report that the purpose of emphasizing the absolute necessity of freeing the streets as far as possible of dust and dirt, and particularly to impress the necessity of devising methods by which our sweeping shall be done in dustless fashion. That seems to me to be an extremely important point. In the report of this same subcommittee, we attached special importance to one other thing, which I am sure you will all agree is of the greatest consideration. Some of the points I have already touched upon; some of the dangers I have already touched upon; I refer now to the open ash and garbage can. The open ash and garbage can is a distinct menace to the community, particularly the garbage can. The open garbage can, particularly in warm weather, is the best possible breeding place for disease germs. To forestall criticism, if that was possible, there would be no argument needed to advance the proposition that every garbage can should be covered. The people as a rule do not appreciate clearly the esthetic reasons, so I shall plead on the ground of health, that the open garbage can is a distinct menace to the health of the community, and if nothing else is accomplished by this movement, I do hope that in the course of time and before very long we shall have in this city, prescribed by all and enforced by all, covered ash cans and covered garbage cans, and, above all, covered garbage carts and covered ash carts. The manner in which the garbage and ash carts collect all sorts of litter and again scatter it throughout the streets, either in the process of collection or immediately after, is a sight that is simply appalling to those who are at all sensitive to such sights.

Another point which we took up in the report of this subcommittee showed how important it is that there should be proper cooperation between the various departments of the city. The street cleaning department bears the brunt of this entire crusade, but unjustly so because its work is tremen-

dously hampered by the neglect, or apparent neglect, of other city departments. We found, for instance, that one of the reasons why the streets could not be properly cleaned was on account of the blocking of the streets by building material and the frequent and uncontrolled destruction and obstruction of the highways by the public service corporations. If any of you will take the trouble to notice what goes on in this city when any building is being erected, except, perhaps, the smaller houses, you will find that the gutters are blocked; that the result of that blocking of the gutter is that all the refuse of the street is collected just where the building operations begin; that the street cannot properly be cleaned at that part; and that after rain the street becomes muddy. My observation has been that the average street cleaner, when he finds a condition of this sort, uses more or less strong language and says, "What is the use of trying to do anything with this street? I cannot." Now there are distinct ordinances covering this matter, and still the ordinances are not strictly enforced. It is not altogether unwillingness on the part of the police department and health department, but the public's privilege is not insisted upon, and if the public will try to compel obedience to these ordinances of keeping obstructions from the streets, the work of the street cleaning department will be very much lightened. I have discussed here the cooperation between the police and street cleaning departments; that cooperation is given in a very satisfactory fashion in some parts of this city.

The Public Health Committee of the academy not very long ago paid Commissioner Woods a visit at police headquarters, to learn what was being done by the police in order to help along the efforts of the street cleaning department. We were delighted to hear of the orders that were issued by the police to help in keeping the streets clean, and we were privileged to visit one of the station precincts of this city, in East Fifth Street, and there under the guidance of the captain, who is evidently in sympathy with the movement for cleaner streets, we were led through the streets of the precinct, and the conditions found were entirely satisfactory. This is a section of the city in which there is a very great accumulation of rubbish; a section of the city in which the pushcart peddlers hold their sway, and yet I am willing to say that that part of the city is now kept as clean and tidy as any other part of the city. In fact, I wish that some of the uptown sections of the city were kept in as good order as that lower east side quarter. It is really astonishing to pass through that district on a busy day and find the streets entirely clean. It is a credit both to the street cleaning department and the police department.

Without wishing to worry my readers with these details, I want to say that the health department has a very distinct duty in this matter, and from what Doctor Goldwater has told me personally I believe that they are only too anxious to cooperate with the street cleaning department. I can poke a little fun at them for the reason that the open ash cart, or rather the private ash carts, carry a permit from the bureau of health plainly in view at the side of the cart. Now the first step to be taken should be to withdraw all these permits and to insist on at least

the private ash collector and garbage collector providing covered ash carts and covered garbage carts. Of course, we could hardly expect them to provide a cart of that sort until the city has substituted covered ash and garbage carts for those now in use.

As a final recommendation that this same committee made, I want to say that we feel that just at this time, when the charter of Greater New York will be revised, there is one very important point to be urged; that there be a concentration of authority over the highways under one head.¹ This is not entirely original with us. We are simply suggesting conditions which obtain in some of the English cities where the entire highways, from house to house, as well as the roadways, are under a single authority. This authority has control of everything that concerns the opening of streets, with the laying of pipes, the cleaning of streets, with everything that concerns the traffic of the streets, and it seems that if we are to have satisfactory conditions, it would be necessary to bring about some such change, and I hope that the time will come when public sentiment will favor a change of this sort which will be incorporated in a revision of the charter.

Now there are a few other points to which I should like to call attention. It has been said that the work of the street cleaning department of the city of New York is three times greater than the work such a department would have in any European city, which simply means that the waste of the American household, or, at least, the methods employed in the American household, are very much more wasteful than those practised abroad, and it seems to me that some of the ladies might very well take up this topic, possibly to stimulate economy, particularly in these times when everyone is preaching economy. It would be a very serviceable act, and beside lightening the burden of the street cleaning department, it would undoubtedly tend to the improvement of the individual household. The public also has the duty, I think, of spreading the desire for outdoor cleanliness. Not only in this city, but throughout the entire country there is absolute indifference to outdoor cleanliness. We are, I think, as careful as any people, we certainly are more careful than many people about our persons. The American public bathe at least as much as any other people in the world, the English not excepted, and in our households we are as cleanly as most of the people in the world, but in the matter of outdoor cleanliness many excel us. Now this is not only true in our city, but if you travel from here to other places you will see everywhere evidence of untidiness and nowhere evidence of tidiness. Abroad as we pass from city to city we see beautiful hedges and fences and beautiful lanes, well kept lawns and meadows, and in this country we see nothing but neglected fences, broken fences, ill kept fields, we see back yards full of empty cans and broken bottles; we see nowhere a proper exhibition of cleanliness, and I think if you try to go just one step further you will see that it is partly due to the fact that we have no proper respect for our neighbors. Instead of tidying our rubbish and garbage heaps, we expose them freely

¹During the past two months, distinct progress has been made by the street cleaning department.

to the public gaze. Now I have been a little while urging these things, but I hope to prove that the problem of street cleaning is a rather complex problem, and a problem that has many interesting ramifications. After all, the street is the place from which we drag things into our home.

116 WEST FIFTY-NINTH STREET.

Original Communications.

ONE HUNDRED YEARS AGO.*

What the Medical Profession Was Thinking About.

BY JOHN M. SWAN, M. D.,
Rochester, N. Y.

At the present time, the practitioner of medicine, let him be where he may, can receive regularly one or more of the weekly journals published in the United States. In addition, he may receive the monthly journal of the State Medical Society of which he is a member. Furthermore, if he is interested in any special branch of medicine, he may receive the monthly or quarterly journal, which is devoted exclusively to that subject. He may subscribe to one or more foreign journals if he so desires. Again, he may have access, either by purchase or through some medical library, to many of the newer textbooks and monographs; so that, with the sacrifice of a little time and energy, any physician in the United States today may fully acquaint himself with the ideas of his colleagues in all parts of the world. One hundred years ago, it was not so; the number of journals devoted to the discussion of medical topics was small; they were published at infrequent intervals; and, as postal facilities had not been developed, by the time the journal reached the subscriber it might be many months old. Many physicians depended upon their correspondents to keep them posted concerning the advances made by the more studious in the profession. The greater weekly journals had not been established. The *Lancet* was established in 1823, the *Boston Medical and Surgical Journal* in 1828, the *British Medical Journal* in 1857, the *NEW YORK MEDICAL JOURNAL* in 1865, and the *Medical Record* in 1866. The *Boston Medical and Surgical Journal* was the result of the union of the *New England Journal of Medicine and Surgery*, 1812-1827, and the *Boston Medical Intelligencer*, 1823-1828. The *British Medical Journal* began as the *Provincial Medical and Surgical Journal*, 1840-1852; this was continued as the *Association Medical Journal* from 1853 to 1856. In 1853, the *London Journal of Medicine*, a monthly, which had been published from 1849 to 1852, was incorporated. The *Journal of the American Medical Association* had been published as the *Transactions of the American Medical Association* from 1848 to 1883. Of the older monthlies, the *American Journal of the Medical Sciences* was established in 1827 and the *Practitioner* in 1868.

In the year 1812, the *New York Medical and Philosophical Journal and Review*; the *American Medical and Philosophical Register, or Annals, of*

Medicine, Natural History, Agriculture, and the Arts; and the *Edinburgh Medical and Surgical Journal* were being issued. Of these the last is the only one that persists to the present day. In 1855 the *Monthly Journal of Medical Science* was united with the *Edinburgh Medical and Surgical Journal* to form the *Edinburgh Medical Journal* as it is at present (1914) published.

It is advisable, occasionally, for the members of a learned profession to take the time to review the past and to compare the facts and theories with which they are familiar, with those held by their predecessors of a former generation. The library of the Rochester Academy of Medicine is fortunate in possessing many of the volumes of the *Edinburgh Medical and Surgical Journal*. With my readers' indulgence I wish to direct attention to the subjects discussed in this journal for 1812 (second edition, printed in 1815).

At that time the *Edinburgh Medical and Surgical Journal* was published quarterly. Each number of the journal contained three departments. The first was devoted to original communications; the second was known as the department of critical analysis and consisted of book reviews; the third was called the department of medical intelligence and contained news items.

The first original article in the January number, 1812, was entitled: *Observations on the Nature and Cause of Certain Accidents which Sometimes Occur in Battle and Have Been Usually Ascribed to the "Wind of a Ball,"* by Mr. Daniel Ellis. Mr. Ellis makes the following quotation from Dr. Blane: "A part is sometimes severely hurt and even life destroyed, without any visible external injury or breach of parts, or any appearance of the body from whence the injury proceeded. There were two instances, in the last battle, of a ball passing close to the stomach, and producing instant death." The author describes numerous cases of accidents in battle which occurred in various parts of the world and which were ascribed to the wind of a ball. He says: "To me, indeed, these accidents appear altogether different from those produced by the operation of ordinary mechanical agents; and bear, in all their circumstances, a much nearer resemblance to the effects which, in many cases, succeed to the action of atmospheric electricity." He then cites numerous instances of lightning stroke in which effects were produced similar to those described in the accidents ascribed to the wind of a ball. The April number of this journal brought forth an article by John Spence, M. D., Surgeon, Royal Navy, entitled, *Observations of those Accidents Commonly Ascribed to the Wind of a Ball*. Doctor Spence is not convinced by the reasoning of Mr. Ellis. He thought that these accidents were due to comparatively light substances, such as pieces of canvas, rope, yarn, and parts of bedding, which are carried in front of the ball, producing the injury without breaking the skin. Doctor Spence is convinced that no accident requires to be more narrowly watched. He says: "Inflammation frequently supervenes, and, if not early checked by bleeding, purging, and other antiphlogistics, it will run rapidly to gangrene." This paper was followed in turn by an article by the Rev. Patrick Forbes, entitled, *Observations on the*

*An address delivered at the meeting of the Society of Physicians of Canandaigua, New York, December 11, 1914.

Cause of Death from What is Called the Wind of a Ball, which appeared in July. The Rev. Mr. Forbes ascribes the injury to the vacuum produced by the rapid motion of the ball through the air, so that when the ball passes close to the stomach, there is in the first place a great addition to the pressure on that organ from the compression of the air in front of the ball. As soon as the ball has passed, this pressure is followed by a partial vacuum; in consequence of which there is "sudden expansion of all the fluids in the stomach and the blood in its bloodvessels, and the rupture of both."

In these days of smokeless powder and high velocity projectiles, accidents due to the "wind of a ball" are unknown. Descriptions of this condition have disappeared from medical literature. In Volume II, part two, page 28, of the *Medical and Surgical History of the War of the Rebellion*, published in 1877, there is the following statement: "There have not been wanting reports of alleged traumatic effects from the wind of balls. But since experience, fully in accord with theory, has shown that air displaced by large projectiles undergoes no chemical or physical modification and that its displacement cannot exert any deleterious effect upon the tissues, and this has been latterly demonstrated experimentally, such reports do not appear to merit serious consideration."

In Volume II, part three, page 706, the subject is further discussed, and the conclusion is drawn that the internal injuries without external wounds so produced are dependent upon "the 'grazing' or 'brushing' of a projectile, or the rolling motion of a cannon ball over the surface of the body," and that the absence of external wound is due to the elasticity of the skin.

The second paper in the January number is entitled, History of a Case of Impracticable Labour, in which the Cæsarean Operation was Performed, by George Kellie, M. D. This is the report of the case of a woman, aged twenty-seven years, who had been married ten years and had four living children, the youngest of which was three years old. While she was pregnant with the third child, she suffered much from what was deemed a "rheumatism of the loins and hips." In May, 1808, she was delivered of a living child, after a natural but more severe and protracted labor than usual. From this time for more than three years the patient had been confined entirely to bed, unable to turn herself from one side to the other or to raise herself from her pillow without help. Her legs were paralyzed: she was greatly emaciated; and her general health was much impaired by continued suffering and inevitable confinement to bed. "Yet, in this deplorable condition, she again became pregnant, and without accidents she has attained her full time." There was an unusual projection of the sacrum and lumbar vertebræ, the inlet of the pelvis being about two inches according to the judgment of the examiner. A full sized baby was delivered by the Cæsarean operation. It lived about fourteen hours and died of convulsions. The mother lived about seventeen hours. An autopsy was performed, and it was found that there was a very markedly deformed pelvis due to the dislocation forward and downward of the last two lumbar vertebræ and the

first piece of the sacrum. "The alæ of the ilia are folded or bent in such a way that each bone had the appearance of being formed of two planes meeting at right angles." The pubes were fractured. The doctor says that only one woman in England or Scotland had had the good fortune to survive the Cæsarean operation out of the eighteen cases reported at that time. Ten of the children were saved. He also says: "Every woman for whom the Cæsarean operation can be proposed to be performed will probably die." The paper is illustrated with an excellent steel engraving.

In the last one hundred years there has been much improvement in the mortality from Cæsarean section. McPherson (*Am. Jour. Obst.*, LXVI, 33, 1912) has recently analyzed 352 cases of Cæsarean section from the wards of the New York Lying-in Hospital. Of these 352 cases, thirty-eight mothers died and fifty-three children. Doctor McPherson says that the mortality ought not to be more than two per cent. under ideal conditions.

The next paper is entitled, A Case of Diabetes Treated by Venesection, by James Murray, surgeon, Belfast. The patient was a man, aged seventy-two years, who had been passing ten quarts of urine a day. It was on this circumstance that the diagnosis was made. Doctor Murray bled the patient, removing nineteen ounces of blood, after which the patient walked one half mile to his lodging "with unusual firmness and vigor." Two days later he was bled again and fourteen ounces of blood were removed; two days after that another fourteen ounces were removed. Three days after that a blister was applied, which remained on twenty hours and discharged well; the pain prevented him from sleeping during the night. The next day the patient was bled again and seven ounces of blood were removed. In all, in one week, the patient was bled fifty-four ounces. Three days after the last bleeding the patient went home, a distance of twenty miles. At the time of the report he "thinks himself perfectly well in every respect, feels vigorous and renovated, and experiences no inconvenience but the irritation of the blistered part, which still discharges well." He was passing three pints of urine; his pulse was seventy-one; his skin, eyes, and tongue were perfectly natural; his bowels were regular; and his appetite was nearly normal.

The next paper is entitled, A Case in which a Metacarpal Bone was Successfully Removed, by J. T. Gregson, surgeon, Sunderland. This is followed by a paper entitled, Case of Singular Torpor, in which Dissection did not Discover any Satisfactory Explanation of the Symptoms, by William Cooke, surgeon, Plaistow, Essex. The patient was a woman, aged forty-nine years, who presented extreme torpor and a tendency to sleep, often when engaged in the performance of her social duties. She had had two convulsions. This symptom had been present for seven or eight years and Doctor Cooke thought that after death he would find external and internal hydrocephalus. There is nothing in the article which would point to the cause of this symptom, except the statement that the patient passed too little urine. At the autopsy no cause for the fatal termination could be demonstrated. It says that the stomach, intestines, and liver were par-

ticularly examined and appeared decidedly healthy. There is no note of the condition of the kidneys, which, in all probability, were the seat of the disease. This was before the days of Bright.

The next paper is entitled, *Case of Inguinal Aneurism Cured by Tying the External Iliac Artery*, by William Goodlad, surgeon. One surgeon had "advised the removal of the tumor by extirpation," and another had "recommended the frequent application of blisters to it." Doctor Goodlad tied the external iliac artery, after which the wound contained "healthy pus." "At the end of three weeks, the wound was little larger than a pea; the discharge was trifling." At the end of a month, the wound was perfectly healed.

The next paper is entitled, *Case of Erythema Mercuriale, Accompanied by an Affection of the Cornea*, by J. Nicholson, member of the Royal College of Surgeons, London. The case was one of mercurial dermatitis following inunctions with mercurial ointment. The affection of the cornea was described as "exactly resembling an eye which has been exposed to the air for some time after death." It cleared up.

The next paper is entitled, *Case of Wounded Diaphragm*, by Alexander Boyle, A. M. Surgeon, 62d Regiment of Foot. The symptoms resembled those of perforation of the stomach or intestine. An autopsy was performed and a diaphragmatic hernia was discovered with the jejunum and the whole ileum, except about eight inches, the transverse colon, and the omentum in the thorax. About eleven months before, the man had been wounded in the left side between the sixth and the seventh ribs.

The next paper is entitled, *A Case of Chorea Cured by Purgative Medicine*, communicated to J. Hamilton, senior, by Hardwicke Shute, M. D., Physician, Bath. The patient was a female, aged twenty years, of rather delicate constitution and sanguineous temperament, who was "affected with constant and violent irregular motions of the arms, legs, head, and occasionally trunk of the body." "The spasms continue during sleep, which is short and disturbed." The case was treated with calomel and jalap followed by senna, followed by aloes. The aloes was continued for several days and in nine days the patient was free from spasms.

The next paper is entitled, *Observations upon Venereal Disease*, by J. Peake, member of the Royal College of Surgeons, London. Mr. Peake reports three cases of sore throat and buboes, apparently unaccompanied by chancre and cured by mercury.

The next paper is entitled, *Case in which Beneficial Effects of Friction, as Recommended by Mr. Grosvenor, of Oxford, were Strongly Exemplified*, communicated by Doctor Duncan, Senior. This paper contains an interesting letter from the mother of the child who had a chronic nonsuppurative arthritis of one knee, following scarlet fever, which was cured after friction, exercise on foot, and the occasional use of calomel.

The next paper is entitled, *Observations on the Occurrence of Smallpox after Cowpox*, by Thomas Charles Haden, Surgeon to the Derbyshire General Infirmary. Mr. Haden says: "It is impossible not to associate with the recollection of Jenner, a feeling of shame at the neglect with which he has been

treated by his ungrateful countrymen. He has, in his native land, been reviled by individuals; and, though rewarded by the Legislature, their inadequate boon was embittered by illiberal opposition; whilst, in the country of his hereditary enemy, statues have been raised to his honor, and the most ample respect paid to his invaluable services." The paper reports the case of a child, aged ten years, who had been vaccinated at the age of two years, but who had a mild attack of smallpox and recovered. The case of a child, aged two years, unvaccinated, who had had an attack of smallpox and died. Then six children were vaccinated successfully; one of these children, aged four months, had a mild attack of smallpox and recovered. On the twelfth day after vaccination another of these children, aged six years, had a mild attack of smallpox, and on the thirteenth day after vaccination the other four children developed mild attacks of smallpox. All of these children recovered. Then there is a note of another child, aged eight years, who had been vaccinated six or seven years before, who had a mild attack of smallpox and recovered. The paper also contains a letter giving the details of four cases of smallpox which occurred after vaccination.

The next paper is entitled, *Case of Hepatitis Terminating in Sphacelus*, communicated by W. C., Surgeon in the Navy, and member of the Royal College of Surgeons, London. The paper contains the report of the autopsy of a case of ruptured abscess of the liver. The autopsy was performed at sea, in October, 1811.

The number for April begins with a paper entitled, *Some Observations on Intussusception with an Engraving*. By Mr. Howship, Fellow of the College of Surgeons in London. This paper contains a report of a case of intussusception with autopsy. He illustrates it by a steel engraving. It is followed by one entitled, *Case of Caries of the Second Cervical Vertebra, and Consequent Fracture of its Dentiiform Process*, by A. G. Kymell, Assistant Surgeon, 2d Battalion, 14th Regiment of Foot. The patient was a private soldier, aged thirty years, who had been much subject to swelling about the neck, which, he said, alternately disappeared and returned. He was suffering from swelling and inflammation of the upper and posterior portion of his neck; he had no fever. There was pain on the swallowing of solid food; and a tense and painful tumor. Later the patient developed lassitude and numbness in the legs; his head was bent forward and there was an unusual prominence of the upper cervical vertebrae; still later, he became paralyzed and had suppression of urine and feces. The patient had said that he had had no accident; but after his death, a sergeant in his company said that on the day the patient had been first seen, while watching a game of fives, a ball had come toward the patient, who suddenly threw his head backward and said he felt as though something had given way in his neck. Doctor Kymell made a diagnosis of absorption of the transverse ligament, allowing the odontoid process to press upon the spinal cord. At the autopsy the odontoid process was found fractured at its base, having been attenuated by caries which had affected it as well as the body of the vertebra. In all prob-

ability this was a case of tuberculosis of the vertebra in which the sudden forward movement of the head produced the fracture which caused the patient's death. The author concludes his paper with the following expression: "So little can a medical man sometimes depend on his patient's veracity; and so liable is he to form a false diagnosis!"

The next paper is entitled, *History of a Fever which Prevailed in the Suburbs of Paisley; with an Account of the Utility of Blood-Letting in Imperfect Crises, Slow Convalescence, and Lingering Ailments*, by James Muir, Surgeon, Paisley, and Member of the Faculty of Physicians and Surgeons, Glasgow. The paper contains a report of thirty-two cases of fever occurring in thirteen families. One patient died after passing a great quantity of grumous bloody stool. This is followed, later in the issue, by a paper entitled: *Some Remarks on the Fevers of Sicily; with an Account of the Autumnal, or Bilious Remittent Fever of that Island, as it Appears Among the British Troops*, by Alexander Boyle, A. M., Surgeon to the 62nd Regiment of Foot.—Communicated by N. Bruce, Esq., Surgeon to the Forces. In the torrid months of summer the prevailing disease was a febrile complaint which Mr. Bruce called cephalitis. With the beginning of the rains in September the fevers were still of the inflammatory kind; but the affection of the head no longer formed so conspicuous a symptom. On the other hand, the symptoms then manifested themselves as phlegmasiæ affecting the other parts. During winter and spring, pneumonia and acute rheumatism were the prevailing complaints; but those which proved the most tedious and fatal were obstinate dysenteries and intermittents—the common sequel of violent attacks of the autumnal fever, and dependent on chronic affections of the abdominal viscera.

It is impossible at this day to give an opinion of the form of fever described in these two papers. In Mr. Boyle's paper it is quite likely that some of the cases were cases of malaria and others were cases of typhoid fever. And it is not impossible that some of his patients were suffering from Malta fever. In all probability the local epidemic described by Mr. Muir was an epidemic of typhoid fever.

The next paper is entitled, *Medical Report*, by James Clark, M. D. Late physician to the Nottingham General Hospital, and the Vaccine Institution; Now Resident Physician at Sidmouth. The paper describes a case of hydrothorax cured after calomel and squill; and two cured after digitalis. It also contains a table of diseases and some meteorological observations.

The next paper is entitled, *Case of Scirrhus Stomach, and Stricture in the Colon, with Appearances on Dissection*, by John Holmes, M. D., Cole-rain. The patient was a man, aged thirty-nine years, who complained of dyspnea and epigastric pain, constant vomiting, emaciation, and blood in the stool. In describing the condition of the patient, Mr. Holmes makes the following observations: "On laying my hand over the epigastric region, where the pain was most severe during the latter months of the complaint, I have more than once perceived a gurgling noise, like that of a fluid forcibly driven through a narrow aperture, in that part of the ab-

domen beneath my hand." There was a necropsy at the request of the patient. The description of the condition of the stomach is typical of scirrhus carcinoma. Mr. Holmes's description is as follows:

Nearly that half of the circumference of the pylorus, which is a continuation of the lesser curvature of the stomach, was completely scirrhus; and although the remaining part of the circumference of the pylorus seemed in its natural condition, yet the calibre of the passage from the stomach into the duodenum appeared to be much diminished. The cardia, and upper part of the stomach, were in a sound state. The intestines being further examined, a most remarkable stricture was found in the great arch of the colon. . . . The mesentery also was in a very morbid state; small circular spots of a whitish appearance were interspersed over the greatest part of it: when these spots were compressed between the fingers, they were found to be small hard bodies, seemingly of a cartilaginous structure.

The next paper is entitled, *Cases of Emphysema Cured by the Use of Cold Applications*, by P. Johnson, Surgeon, Royal Navy. Mr. Johnson reports two cases of subcutaneous emphysema and makes this interesting statement: "Having never seen a case of the kind treated by any other person, I was at considerable loss how to act. Books gave me little information."

The next paper is entitled, *Miscellaneous Communications*, by W. Simmons, Surgeon, Manchester. The first case reported by Mr. Simmons was that of an accident which happened to himself. He pricked his left cheek with the point of the lancet prepared to vaccinate a patient. He had a typical vaccine lesion at the point of the inoculation, and he used the serum from this lesion to vaccinate three children. He makes some remarks on the utility of diuretics in ulcers situated on the lower extremities. He employed potassium subcarbonate, squills, digitalis, mercury, and sweet spirits of nitre. He then makes some remarks On the Property of Arsenic in Cancer, and says that arsenic when taken internally allays the pain of cancer in the ulcerated stage. He then talks about The Property of Iron in Cancer. He sprinkled iron carbonate on the ulcerated surface of the growth, washed the edges with a solution of iron sulphate, and administered iron carbonate internally. He then reports, A Case of Occult Cancer. The patient had a tumor of the breast of six months' duration, which was removed and found to consist of a homogeneous substance of a texture so hard as to resound when scraped with a scalpel; but there were no white bands or intersections of any kind. The contribution closes with some remarks on the *Liquor Ferri Alkalini* in Scrofula.

The next paper is very interesting to Americans in general and New Yorkers in particular. It is entitled: *Report of the Board of Health at New York, on the Yellow Fever at Perth Amboy*. Communicated with a Prefatory Letter, by C. Chisholm, M. D., Bristol. It seems that yellow fever was prevalent in Perth Amboy, N. J., in September, 1811, and the Board of Health of the State of New York appointed a committee of physicians to inquire into the matter. The medical health officers refused to form a part of the committee and the officer more immediately employed in the preservation of the city of New York from imported infection, a Doctor Rodgers, refused to give the committee any information. Doctor Chisholm, who had been in

New York Bay during the Revolution and who was acquainted with the region, criticizes Doctor Rodgers severely. Doctor Rodgers refused to give the information because the disease was in New Jersey and he had seen no cases of it at the quarantine station on Staten Island. Rodgers, however, had been at Perth Amboy and had seen the cases and said they were yellow fever. The Perth Amboy physician gave the committee full information and said he thought that the disease was derived from some of the West India vessels which had been lying at the wharves. The *Favourite*, from Havana, was the probable source of the disease, as "Havanna" had been very sickly at the time she was there.

The next paper is entitled, Case of a Singular Affection of the Right Leg, which, on Extension of the Limb, Excited Agonizing Headache, by James Munsey, M.D., Amersham. The patient was a child, aged eleven years, who had been sick six weeks with sore throat and headache, fever, loss of appetite, offensive breath, constipation, and pain in the flexor muscles of the right leg whenever the leg was moved. Doctor Rumsey concluded that the seat of the disease was in the head, and thought that if the congestion in the vessels of the brain was not soon relieved it would lead on to inflammation, and consequent effusion of hydrocephalus internus. The pain in the leg he regarded as a sympathetic affection of the nerves supplying the muscles so affected; and the fever as symptomatic of the primary disease of the head. Accordingly he had six leeches applied to each temple and ordered the child's head shaved and blistered. He also gave two grains of calomel and ten grains of powdered jalap root. The child refused to have her head shaved, so the blister was not applied; but the calomel and jalap and the leeches were used, and the former continued so as to produce three or four stools every day. She was given a "very simple regimen." In three days the patient had improved. In five more she was considered convalescent; but in order "to guard against any return of the symptoms of congestion" he had one half dram of stronger mercurial ointment rubbed into the lower extremities at bed time. He also directed that the calomel and jalap be taken so as to produce a full effect twice a week and that a blister be applied between the shoulders, and kept open with the unguentum sabinæ. He also gave six drops of tincture of digitalis, two drams of aqua ammoniæ acetatis, twenty drops of compound tincture of lavender, and one half ounce of camphor mixture, three times a day. The patient recovered.

The next paper is entitled, Case of Poisoning by the External Application of Corrosive Sublimate, by Archibald Robertson, Surgeon, Royal Navy.

The next paper is entitled, Case of Palsy Cured by Titillation, with Some Observations on the Effect of Titillation on the Nervous System, by James Wardrop, Esq. The patient was a soldier, aged twenty-three years, who had contracted a fever in Portugal, which had lasted, with recurrences, for eighteen months. He also had paralysis of the left arm and leg. He was directed to tickle the palm of his paralyzed hand and the sole of his paralyzed foot with a feather until it produced laughter. In two months from the commencement of the treatment the man was met on the street carrying a bundle under

his formerly paralyzed arm. In addition to the titillation he was advised to rub his paralyzed limb with his dry hand morning and evening. The patient remained perfectly well four months after the treatment had been employed. Mr. Wardrop says that the treatment is to be applied only in cases in which the primary affection is removed and in which the palsy alone remains. He suggests it for tic douloureux, sciatica, and other affections which seem chiefly confined to the nerves.

The July number opens with a paper entitled, Observations on the Opinion of Mr. Wilson and Doctor Adams, Respecting the Existence of the Venereal Disease in the Island of Otaheite, by Henry Edmonstone, Surgeon, New Castle. It seems that Doctor Adams, in editing *Hunter's Treatise on the Venereal Disease*, said, quoting a publication by Mr. Wilson, that the venereal disease is unknown in Otaheite, one of the South Sea Islands. Captain Cook, in his book, *Voyages*, has said that syphilis was prevalent there. The article is a defense of Captain Cook's statement and is derogatory to the scientific accuracy of Mr. Wilson and Doctor Adams. In the October number, Doctor Adams answers Mr. Edmonstone.

The next paper is entitled, Case of Urinary Calculus, by Alexander Jack, surgeon. The patient had a large sized vesical calculus, from the effect of which he died. There is a description of the autopsy.

The next paper is entitled, An Account of a Case of Lithotomy with Practical Remarks, by James Barlow, Surgeon, Blackburn, Lancashire. In this case the surgeon inserted a flexible metallic catheter into the bladder and bent the apex of the instrument under the arch of the pubes to fix it. He accomplished this manipulation by introducing his finger into the rectum. Lithotomy was done; the wound became infected and the infection seemed about to subside when orchitis developed; first in the right side and then in the left. The patient recovered.

The next paper is entitled, Case of Encysted Tumor of the Brain, by Alexander James Buchanan, of Glasgow. The autopsy obtained in this case is described.

The next paper is entitled, Account of Unusual Conformations of Some Muscles and Vessels, by Alexander Ramsay, M.D., Lecturer on Anatomy, Edinburgh. This paper is illustrated with a steel engraving.

The next paper is entitled, On Painful Subcutaneous Tubercle, by William Wood, Esq., member of the Royal College of Surgeons, Edinburgh. The author describes eight cases of painful subcutaneous tumors, sometimes single and sometimes multiple, about the size of a pea and very painful. In the October number, Mr. Wood contributes another paper on the same subject in which he gives some observations from the literature.

The next paper is entitled, Are those Diseases Attributed to Mercurial Action on the System of the Human Body, Peculiarly and Exclusively Generated by It? by Colin Chisholm, M.D., F.R.S., etc., etc., of Bristol and Clifton. Chisholm's paper treats of the use of mercury in syphilis and scrofula. It is a philosophical paper in which the pathogenesis of these complaints and some others are speculated and

reasoned about, on purely clinical evidence. He says: "That mercury may do mischief, when injudiciously or indiscreetly employed, is a proposition which experience of the most decided nature proves the truth of; but I must repeat, that the unqualified assertion that in all cases (and the invectives seem to embrace all) wherein it is administered, its tendency is materially to injure or to destroy life, is neither proved by experience, nor warranted by any rational principle of theory; but I mean not to asperse, nor to individuate, when I say, it may generally be considered as the result of an indolent and negligent pathology, as connected with the climate more especially; or of unreasonable or pernicious prejudice."

The next paper is entitled, *Observations on the Treatment of Chorea Sancti Viti*, by Henry Reeve, M. D., one of the physicians to the Norfolk and Norwich Hospital. At that time chorea was treated with purgatives. Doctor Reeve, in sixteen years, had seen thirty-five cases of chorea, all of which ended in recovery, except one, and they terminated favorably under every variety of treatment, from the most powerful down to the most inert and apparently inefficacious remedies. He then submits a list of patients treated at the Norfolk and Norwich Hospital from March, 1766, to March, 1812. There were eighty-four patients, of whom seventy-four were cured, five were relieved, one was discharged "at his own request, having epileptic fits," one not likely to receive benefit, and two died. Reeve says: "During a period of thirty-six years, the medical department of this institution has been conducted by eight different physicians; their practice has varied considerably; yet in the cure of this disease, success has been nearly equally divided amongst them." The cases are analyzed in a scientific spirit.

The October issue began with a letter to Dr. Andrew Duncan, Jun., Physician, Edinburgh, from Doctor Cochrane, Fellow of the Royal College of Physicians, Edinburgh, enclosing a letter from Doctor Harness, Commissioner for Sick and Wounded Seamen, and communications from Mr. Parson, Doctor Burnett, and Doctor Wilson, on the Ardent Fever, as observed at Guadalupe, Gibraltar, and Plymouth. The Ardent Fever is yellow fever. Mr. Parson, who was a surgeon in the Royal Navy, claimed a constant and intimate observation of yellow fever for nearly three years. He considered the continued and bilious remittent fever of the West Indies to be modifications of the same disease, although other writers considered them distinct. He considered the predisposing causes to be marshy miasmata. The morbid force he thought to be of a most violent and concentrated character, exhibited in the peculiar determination of blood to the brain and to the abdominal viscera. The curative indications consisted in unloading the vessels as quickly as possible by copious and repeated blood letting until the symptoms abated. These powerful means are to be aided by the free use of cathartics, tepid diluent drinks, and warm baths, or preferably, vapor baths. His faith in the efficacy of mercury was completely shaken. Out of 219 patients with the fever thirty-six died. Doctor Cochrane approved of this treatment and says that in the first stage of yellow fever the patient should be bled from the

temporal artery or from the jugular vein. Doctor Harness also approved of the treatment.

This paper is followed by one entitled, *Some Account of a Fever that Appeared at Gibraltar in the Month of October, 1810*, communicated to the Honourable Commissioners of His Majesty's Transport Board, by W. Burnett, M. D., Physician to the Fleet in the Mediterranean Station. Gibraltar had a severe epidemic in 1804. It was thought to be the contagious fever of the West Indies, known by the name of the Bulam Fever, from its having been imported from that settlement to the island of Grenada, in 1793. The same disease was seen again in 1810. The symptoms were "shiverings," succeeded by heat, acute pain across the forehead, sometimes extending over the whole head; pain in the back and loins; great oppression at the breast; full and quick pulse; tongue coated with a brown or black crust; eyes red.

On the second day the patient felt easier. The breast and arms were covered with livid blotches; and sometimes the patient vomited a fluid, with a sediment resembling coffee grounds. Death generally succeeded in a few hours afterward. The medicines found to give most relief were tartar emetic ("Antim. tartarisat"), calomel, and opium.

The next paper is entitled, *Report of the Treatment Adopted for the Cure of Contagious Fever Among the Seamen Belonging to His Majesty's Navy, that were sent Ashore to the Royal Hospital at Plymouth, and Communicated to the Honourable Commissioners of His Majesty's Transport Board*, by J. Wilson, M. D., Physician to the Hospital. A number of sick were transferred to the hospital from the *Diadem* in January, 1812. The patients complained of "severe pain all over them (as they expressed it), but particularly affecting the head, breast, and loins, and a considerable degree of lassitude; pulse rather full, but not exceeding 100 in a minute; skin hot and dry, tongue foul, thirst great, and bowels in general costive; as the disease advanced, redness of the eyes, strong pulsation of the carotids, prostration of strength, stupor, delirium; involuntary discharge of feces and urine supervened, and, in one case, singultus with subsultus tendinum." The treatment consisted of bleeding, purging, antimonial powder at night, pediluvium, head shaved and blistered, and repeated cupping of the temples, when bleeding could not be done. There were fifty cases with one death.

The next paper is entitled, *On Nervous Affections and on the Treatment of Chorea Sancti Viti*, by David Uwins, M. D., Aylesbury, Bucks. The paper is a criticism of that of Doctor Hamilton appearing in an earlier number in which purging was recommended as a method of treatment. The author refers to the case of a lad, aged seventeen years, in whom treatment by purging was followed by improvement; the case of a girl, aged twelve years, who was made worse by purging; but who was cured after the administration of silver nitrate and valerian tea; the case of a girl, aged twelve years, in whom there was no improvement by purging, but who was improved after taking a powder of powdered digitalis, three grains; ammoniated copper, four grains; and powdered myrrh, one dram, three times a day; the case of a girl,

aged fifteen years, who was cured after taking thirty drops of tincture of digitalis every six hours, accompanied by electrical treatment; and the case of a girl, aged eighteen years, who died.

The next paper is entitled, On the Cure of Tetanus by Opium and the Warm Bath, by Thomas Christie, M. D., of the Royal College of Physicians, London. The paper reports five cases, four of which resulted fatally. The other patient was cured in forty-two days, after taking forty-nine ounces, 6.5 drams of laudanum.

The next paper is entitled, Letter to Astley Cooper, Esq., on the Cure of Curved Spine, by B. G. Burroughs, Esq., Surgeon, Clifton. The writer asks Sir Astley if it is proper to treat curvature of the spine by confining the patient entirely in the horizontal posture for a year or a year and one half.

The next paper is entitled, Observations on Yellow Fever in New York in 1803, by Alexander Ramsay, M. D., Lecturer on Anatomy and Surgery, Edinburgh. In 1803, the disease raged in the narrow streets of New York, near the wharves, where numbers of "ill fed and irregular people" were crowded together. He says that the notion of the endemic quality of yellow fever seems to rest on negative grounds. He suggests that much harm is done in the treatment of the disease by mercury. He speaks of "Broad-way" and "the Hospital of Bellevue."

The next paper is entitled, Case of Pseudo-Syphilis with Remarks, by William Stephenson Clark, Surgeon, York, Member of the Royal College of Surgeons, and late Resident-Surgeon of the Lock-Hospital, London. He refers to the treatment of all cases of inflammation of the genitalia with mercury and deplores the practice. He says: "Ignorance and error often render mercury one of the most precarious and mischievous medicines in use."

The next paper is entitled, A Case of Purpura Hæmorrhagica, by Thomas Jeffery, M. D., one of the Physicians of the Dispensary and Fever Hospital, Liverpool.

This is followed by a paper entitled, Cases of a Peculiar Disease of the Testis, with Observations Thereon, by Thomas Little, M. D., Licentiate of the Royal College of Surgeons in Ireland, and Surgeon of the North Mayo Regiment of Militia. He describes two cases of fungous growth of the testicles.

After the original articles in the January number, there is a department called the Inquirer. This contribution is No. 23 and is entitled, Observations on Inflammation. The department seems to have been discontinued in the subsequent numbers of the journal for 1812. There is also a communication entitled, Medical Extracts, in the January number in which there is an abstract from Humboldt's *Political State of New Spain*, which describes yellow fever; and an abstract from Humboldt and Bonpland's *Plantæ Equinoctiales*, in which *Angostura* Bark is described.

Part II is entitled, Critical Analysis, and is composed principally of book reviews. These are, in fact, reviews and not merely book notices. The reviews were evidently written after a careful reading of the volumes in question. The author's statements are summarized and his conclusions are criticized, sometimes favorably and sometimes unfavorably. This work is superior to the book review

work seen in our medical journals at the present day, with perhaps a few exceptions. There are some abstracts of articles appearing in the Transactions of Learned Societies. The books reviewed during the year 1812 are as follows:

A Treatise on the Principal Diseases of Dublin, by Martin Tuomy, M. D., T. C. D. *Disquisitions in the History of Medicine*, by Richard Miller, M. D. *On the Non-existence of Sugar in the Blood of Persons Laboring under Diabetes Mellitus*, by W. H. Wollaston, M. D. *Practical Remarks on Insanity; to which is added a Commentary on the Dissection of Brains of Maniacs; with some Account of Diseases Incident to the Insane*, by Bryan Crowther. *An Account of the Ravages Committed in Ceylon by Small-Pox, Previously to the Introduction of Vaccination, with a Statement of the Circumstances attending the Introduction, Progress, and Success of Vaccine Inoculation in that Island*, by Thomas Christie. *Observations on the Hydrargyria, or that Vesicular Disease Arising from the Exhibition of Mercury*, by George Alley, M. D., M. R. I. A. *Practical Observations in Surgery, Illustrated by Cases*, Second Edition, by William Hey, F. R. S. *On the Diseases of Iceland*, from Sir G. S. Mackenzie's Travels. *Transactions of the Medical Society of London*. Vol. I. Part I, 1810. *Medico-Chirurgical Transactions*, published by the Medical and Chirurgical Society of London. Vol. II, 1811. *A Treatise on the Management of Infants: Containing the General Principles of their Domestic Treatment; with the History and Method of Cure of some of their most Prevalent and Formidable Diseases*, by John Syers, Surgeon. *An Inquiry into the Nature and Cause of the Resp, or that Disease which is so Destructive among Sheep, especially Lambhogs, on being first put to Cole-Keeping; with Proposals for Publishing by Subscription, a Recipe, containing Directions effectually to Prevent and cure Resp, and to Promote the increased safety of Cole and Turnip-feeding Sheep throughout the Year*. "The object of this before us, is to get five hundred guineas for communicating to the subscribers a *nostrum* for the prevention and cure of the resp. The nature of the specific is, of course, not disclosed here, nor are we very anxious to learn it; but this pamphlet contains what to us appears infinitely more valuable, an apparently accurate description of certain diseases to which sheep are liable when fed upon cole or turnips." *Clinique chirurgicale, ou mémoires et observations de chirurgie clinique, et sur d'autres objets relatifs à l'art de Guérir*, par Ph. Pelletan. Three volumes.

Entomologie und Helminthologie des Menschlichen Koerpers, oder Beschreibung und Abbildung, der Bewohner und Feinde desselben unter der Insecten und Wuermern, von D. Johann Heinrich Joerdens. Two Volumes, 1801 and 1802. *An essay on the Disease called Yellow Fever, with Observations Concerning Febrile Contagion, Typhus Fever, Dysentery, and the Plague*, partly delivered at the Goulstonian Lectures before the College of Physicians, in the years 1806 and 1807, by Edward Nathaniel Bancroft, M. D. London, 1811.

Essays on the Changes of the Human Body at its Different Ages; the Diseases to which it is Predisposed in each Period of Life; and the Physiological Principles of its Longevity. The whole Illustrated by many Analogies in Plants and Animals, by Thomas Jameson, M. D. London, 1811. This was before the days of Darwin. *The Trial of Michael Whiting for Administering Poison to George and Joseph Langman, at the Assizes holden at Ely, on Wednesday, the 4th of March, 1812*, taken in Court by Thomas Leigh, Cambridge, 1812. The extraordinary Trial of Daniel Dawson at the Assizes held for the County of Cambridge, on Friday, March 12, 1812, on an Indictment charging him with Poisoning the Eagle Colt, the property of Sir F. Standish, at New Market. Taken in court by George Kent, Newmarket, 1812. *On Bilious Colic and Convulsions in Early Infancy*, by Joseph Clarke, M. D., Dublin, 1811. *Cases of Apoplexy and Lethargy; with Observations upon the Comatose Diseases*, by J. Cheyne, M. P., London, 1812. *On the Morbid Sensibility of the Eye, commonly called Weakness of Sight*, by John Stevenson, London, 1810. *Communications Relative to the Datura Stramonium, or Thorn Apple: As a Cure or Relief of Asthma*. Addressed to the Editor of the Monthly

Magazine; several of them never before published. London, 1811. *An Experimental Examination of the last Edition of the Pharmacopœia Londinensis*; with Remarks on Dr. Powell's Translation and Annotations, by Richard Phillips, London, 1811. *The Croonian Lecture, on some Physiological Researches respecting the Influence of the Brain on the Action of the Heart, and on the Generation of Animal Heat*, by B. C. Brodie, Esq., F.R.S. *Experiments and Observations on the different Modes in which Death is produced by certain Vegetable Poisons*, by B. C. Brodie, Esq., F.R.S. Communicated by the Society for Promoting the Knowledge of Animal Chemistry. *Further Experiments and Observations on the Action of Poisons on the Animal System*, by B. C. Brodie, Esq., F.R.S. Communicated to the Society for the Improvement of Animal Chemistry, and by them to the Royal Society. *A Description of the Arteries of the Human Body*, by John Barclay, M.D. Edinburgh, 1812. *An Inquiry into the Process of Nature in Repairing Injuries of the Intestines; illustrating the Treatment of Penetrating Wounds and Strangulated Hernia*, by Benjamin Travers. London, 1812. *On the Operation of Largely Puncturing the Capsule of the Crystalline Humour, in order to promote the Absorption of the Cataract; and on the Gutta Serena, accompanied with Pain and Inflammation*, from the Third Edition of Observations on the Cataract and Gutta Serena, by James Ware, F.R.S., London, 1812. *Bionomia. Opinions Concerning Life and Health, Introductory to a Course of Lectures on the Physiology of Sentient Beings*, by A. P. Buchan, M.D., London, 1811. *A Dissertation on the Bite of a Rabid Animal; being the substance of an Essay which received a Prize from the Royal College of Surgeons in London, in the year 1811*, by James Gillman, F.L.S. *Monographie des Dégénérationes Skirreuses de l'Estomac, fondée sur un grand nombre d'Observations recueillies tant à la Clinique Interne de l'Ecole de Médecine de Paris, qu'à l'Hôpital Cochin*, par Frederic Chardel, M.D., Paris, 1808.

This paper is already so long that it is impossible to review the third part of the journal; the Department of Medical Intelligence. It must suffice that I call attention to one or two items of particular interest. In the April number there is an account of an address delivered by the Deputy Superintendent-General of Indian Affairs to the Five Nations, assembled in council at Fort George in Upper Canada, 8th November, 1807. The Five Nations had been assembled to receive a book from the English by Doctor Jenner, explaining the advantages to be derived from vaccination against small-pox. A reply was made by the Chiefs of the Five Nations, Mohawks, Onondagas, Senecas, Oneidas, and Cayugas. The signatures of the various Chiefs are reproduced in English and in picture writing.

In the July number, James Smith, of Baltimore, Md., offers to tell from the scab removed from the arm whether the genuine kine pock had been used or some spurious imitation. His experience of eleven years led him to maintain that there is no possible mistake or deception in vaccination, let the operation be performed by whom, when, or where it may, which he will not be able to detect with the utmost certainty! Scabs were to be sent by mail!

In the October number there is a list of candidates upon whom the Senatus Academicus of the University of Edinburgh conferred the degree of Doctor in Medicine in 1812. In this list appears the name of Marshall Hall, the physiologist.

Enough has been said to show that our professional ancestors, in the year 1812, were interested in observing and recording their cases and in writing their experiences for the benefit of other practitioners in various parts of the world. One cannot

help but be impressed with the fact that this volume of the *Edinburgh Medical and Surgical Journal* contains the reports of eight autopsies. The steel engravings which are used to illustrate three of the papers are extremely interesting and as well reproduced as illustrations today.

457 PARK AVENUE.

WHOOPING COUGH.*

Its Treatment and Prophylaxis, Based on the Bordet-Gengou Etiology.

By PAUL LUTTINGER, M.D.,
New York.

(From the Research Laboratory of the Department of Health of the City of New York.)

The work reported here is part of an extensive investigation of the etiology, diagnosis, and treatment of pertussis undertaken by the Bureau of Laboratories of the health department in collaboration with some private practitioners. It is a tentative report on both the curative and prophylactic worth of the vaccine treatment.

In 1906, the two Belgian bacteriologists, Bordet and Gengou, communicated to the Academy of Medicine of Brussels, the discovery of a bacillus which they regarded as the cause of whooping cough. It was an influenza-like, polar staining organism, somewhat larger than Pfeiffer's bacillus, which could be isolated only on a special blood medium, from sputum coming from pertussis cases in the catarrhal or the first week of the paroxysmal stage of the disease.

During the spring and summer of 1913, Dr. Anna W. Williams (1), of the city research laboratory, found the Bordet-Gengou bacillus in the sputa of whooping cough patients with enough constancy to warrant a preliminary experiment by the department of health, with the vaccine treatment. Although Bordet himself had not reported any success with specific therapy, there were several American clinicians who had obtained encouraging results with small doses of commercial vaccine.

PREPARATION AND TYPES OF VACCINE.

The following method has been most frequently used by Doctor Povitzky in making the vaccines: A forty-eight hour culture on the special Bordet-Gengou medium is washed off with normal salt solution. It is then shaken three to four hours in the shaking apparatus, after which the emulsion is heated for one hour at 58° to 60° C. and standardized according to Wright's method; 0.25 per cent. carbolic acid is added as a preservative and the vaccine is put up in ten c. c. vials containing 100 million, 500 million, and one billion killed bacteria to each c. c. Vaccine No. 7, instead of being heated for one hour was left in the incubator at 56° C. over night.

The antigens, referred to in the tables, were made by Doctor Povitzky in two ways: First, by leaving the bacillary emulsion for eighteen hours in the incubator, centrifugating, and using the supernatant

*Read before the Medical Association of the Greater City of New York, January 18, 1915.

fluid; secondly, by using the whole emulsion without centrifugation.

The serobacterins were sent for trial by a commercial firm and were found rather disappointing in the few cases in which they were used. Not much could be expected from a shotgun mixture of vaccines of which the specific organism formed only one seventh of the dose, the remainder consisting of equally "sensitized" influenza bacilli, staphylococci, streptococci, pneumococci, and the catarrhalis group.

The stock vaccines were made from strains isolated at the research laboratory, with the exception of Nos. 1 and 2, which contained a strain obtained from a commercial house. No. 1 contained three influenza strains. The various strains entering into the composition of the vaccines were as follows:

Vaccine No.	Strains.
1.....	Com., 33, 35, 37
2.....	Com., 1, C.
3.....	55, 93, 95, 98
6.....	55, 93, 95, 98
7.....	55, 93, 95, 98
8.....	154, 155, 103

With the exception, perhaps, of vaccine No. 8, which seemed to be slightly less effective, all were about equally potent.

METHOD OF ADMINISTRATION.

The vaccines are given subcutaneously with an ordinary hypodermic syringe. The skin over the biceps is rubbed with a piece of cotton soaked in alcohol, and provided that the needle has been sterilized, there is no fear of infection. Large doses, to infants, may be given in the gluteal region.

DOSES AND INTERVALS.

At the beginning, an initial dose of fifty million used to be given, which was doubled every three or four days. Now, we start with 250 million, which is doubled every other day, provided that there is no reaction; i. e., the second dose is double the first, the third is twice as large as the second, and the fourth twice as large as the third, or two billion.

To prophylactic cases only three injections of 500 million, one billion, and two billion respectively are given every three days.

REACTION.

In nearly 3,000 injections given, I have not seen a single severe reaction. By severe reaction I mean one showing a temperature of 103° to 104° F. malaise, vomiting, diarrhea, and chills. A few moderate reactions with malaise, headache, and a temperature not over 100.5° F. have occurred, but in most of them it could be ascribed to gastrointestinal or other disturbances. It is well, however, to warn the parent against a possible local or slight general reaction.

There is absolutely no danger of anaphylaxis. If I make this apparently superfluous statement, it is because several physicians who received their medical training before the era of vaccines and serums, confound the two terms and often call up to ascertain, before using the pertussis vaccine, whether there are any records of anaphylactic shock following its administration.

PRELIMINARY SERIES.

The bulk of the 107 cases in our preliminary series were treated in the fall of 1913, at St. Joseph's Orphan Asylum, through the courtesy of Dr. William J. Bradley, the attending physician, to whom, as well as to the Sister Superior and Sister Magna, I am under deep obligation. Cases treated at the Lincoln Hospital, the Kingston Avenue Hospital, the New York Foundling Hospital, and in private practice by Dr. Albert Vander Veer, Jr., Dr. S. Ginsburg, Dr. Joseph O'Dwyer, Dr. De Castro, and myself are also included. Of these only forty-five have complete histories beside the twenty-five treated prophylactically.

The result of the treatment of the forty-five cases may be summarized as follows:

DURATION OF WHOOP.

Less than one week	6.6
One to two weeks	8.8
Two to three weeks	13.3
Three to four weeks	22.2
Four to five weeks	18.1
One to two months	26.6
Over two months	4.4

Sixty per cent. had stopped whooping within one month. If we adopt Holt's figure of thirty days as the average duration of the paroxysmal stage in pertussis, we may consider these cases as only slightly, if at all, benefited by the vaccine treatment. I must mention the fact, however, that cases treated with the ordinary whooping cough mixtures had been whooping for forty-six to 180 days at the asylum. During an epidemiological investigation conducted in the spring of 1914, I found the average duration of the whoop to have been two months in the Borough of Manhattan. Only 26.7 per cent. had terminated within one month. Thus, by comparison we may ascribe some beneficial effect of the vaccine on the cases treated. The remaining cases, of which we have no complete records, were rather discouraging.

The pertussis vaccine did not seem to have any effect on whooping cough patients treated by the house staff of the New York Foundling Hospital at the suggestion of Dr. Matthias Nicoll, Jr. At the same time, Doctor Hess (2) was trying the laboratory stock vaccines and some autogenous vaccines at the Hebrew Orphan Asylum with mediocre therapeutic results, but with some prophylactic success. Doctor Hartshorn and Doctor Moeller (3), at the Roosevelt outpatient department, did not find our vaccines particularly effective. In private practice, however, they seemed to give some gratifying results to Doctor O'Dwyer, Doctor Ginsburg, and Doctor De Castro. Relatively small doses were given.

The twenty-five prophylactic cases were all treated at St. Joseph's. Twenty-three were given three injections of 100, 200, and 500 million respectively, at intervals of three or four days. No patient contracted the disease. One child who received one injection and persistently refused to submit to another, began to whoop about ten days later. The twenty-fifth or control case which received three injections of alcohol manifested a whoop a fortnight later.

This experiment loses a good deal of its signifi-

cance, however, on account of the lack of information regarding the exact time of exposure. Many had not been exposed at all until after the treatment, while others presumably had mingled with whoopers from one day to four weeks. In view of the fact that during the epidemiological investigation referred to, we had found that 29.3 per cent. of children did not contract the disease although in intimate contact with the whooping members of the family, we must assume that probably a fraction of the St. Joseph's were naturally immune to the disease, and their subsequent freedom from whooping cough should not be ascribed to the vaccine.

Dr. S. Ginsburg, using the laboratory vaccine in doses of fifty million, reports two cases which failed to respond to vaccine prophylaxis. Dr. A. Conrad was kind enough to prepare a synopsis of pertussis cases treated with our vaccines at the Metropolitan Hospital. The average total dose was 355 million and the average total duration of the nineteen cases treated by him was twenty-eight days. This duration includes the stage before the paroxysms, and is shorter than that of our cases at the whooping cough clinic.

THE WHOOPING COUGH CLINIC.

In order to obtain a more uniform view upon the subject as well as more abundant clinical material for bacteriological investigation, the department organized, in the summer of 1914, the whooping cough clinic at Sixteenth Street and Avenue C.

The facilities for the rational treatment and control of pertussis have not been, as all are well aware, any too numerous in New York. With the exception of one ward at Bellevue Hospital for complicated cases, and a few beds at the Metropolitan Hospital on Blackwell's Island, there are no hospital accommodations for severe cases of pertussis. The few dispensaries which consent to treat whooping cough do not fulfill all the requirements for the protection of other children, such as special clinics with separate entrances, etc. In the vast majority of the outpatient departments, the whooper is looked upon as a pariah and treated accordingly. Thus an anomalous situation, a kind of vicious circle, has been created for the sick poor. Applying to the dispensary for treatment, the mother is told to go home without delay and keep the child indoors until the whoop stops; at the same time she is given a card with printed instructions enjoining her to have the child out in the fresh air as much as possible. When the paroxysms become alarming, the lodge physician is sent for and the over-worked contract practitioner is only too glad to diagnose whooping cough and advise the family not to call him again because, as they well know, there is no cure for the disease.

The whooping cough clinic, as evidenced by the increasing number of patients referred for treatment by private physicians, seemed, therefore, to have filled a long felt want. Recent criticisms in certain quarters regarding the ever widening sphere of activities of the department of health, induce me to point out the fact that the cases treated at the clinic are either directly recommended by physicians or have no medical attendance at all. In a case of doubt, the physician who reported the case is invari-

ably called up and his consent obtained before treatment is given.

Furthermore, in her follow up work, the clinic nurse visits every patient at one time or another, and reports on their economic status, thus preventing imposition.

PERTUSSIS CASES TREATED AT THE CLINIC.

Of the 376 cases treated at the whooping cough clinic from August 10 to December 31, 1914, only a fraction is available for comparative study. The records show that they belong to the following groups:

	Cases Treated.	Cases Tabulated.
Still active	10	....
Negative	66	....
Doubtful	20	20
Drugs and vaccines	28	....
Incomplete	4	....
Prophylactic	34	34
Drugs	76	35
Vaccines	138	115
Total	376	204

NEGATIVE CASES; DIAGNOSIS.

The negative cases, forming 17.5 per cent. of all those treated, came in with the diagnosis of pertussis, which, upon further examination, proved to be erroneous. Most of them were mild bronchial infections which improved rapidly under appropriate treatment. A few had tuberculosis, asthma, croup, and one adult had a subacute pharyngitis from excessive tobacco smoking. It requires a good deal of cross examination to get a history of any value from a dispensary patient. The mother will often exaggerate the symptoms in order to gain the physician's sympathy and, thereby, obtain "stronger" medicine; or she may try to minimize them if the youngster is anxious to go to school and is a general nuisance around the house. At other times a parent will answer "yes" or "no" according to a passing whim without serious regard to truth. Thus the records have to be often corrected to agree with facts subsequently discovered. When asking the mother whether the child was whooping, I found it best to illustrate the question by producing the specific sound. This is especially important when the parent speaks little or no English. The same may be said of vomiting, which is to be differentiated from the expelling of the plug of mucus and from mere regurgitation of food, which is common in healthy infants. The limitations of dispensary treatment made it almost impossible to ascertain the relative severity of the disease. In that respect private practice is just as unreliable. What to a young mother seems the severest attack imaginable, appears to the experienced matron as trifling. The father who is kept awake during the night by a few well distributed paroxysms of coughing is liable to describe his child's case as a "terrible one," while the severest attacks, if they occur during the day, when he is not at home, will leave him indifferent. A common standard of comparison could only be established in a hospital where the cases are under constant observation by the house staff.

The diagnosis of pertussis is made on the evi-

TABLE I.—DOUBTFUL CASES OF PERTUSSIS.

Serial No.	Case No.	Age in years.	Sex.	Duration of cough before whoop.	Duration of whoop before treatment.	Vomit- ing.	Treatment		Total dosage (in mil- lions).	Total dura- tion of whoop or cough.	Remarks.
1	59	8 6/12	M.	Parox. cough 7 days	.....	—	Type of vac- cine.	No. of inec- tions.	500	16 days	Exposed to pertussis.
2	158	15	F.	7 days	.....	+	Anti- pneumo- coccus 7 & 8	3	3500	35 days	Discharged with a slight cough. Sputum negative. Treated with creosote in addition to vaccine.
3	192	1	M.	90 days	5 days	—	6	1	250	105 days	Brother of 191, see below.
4	200	5	F.	2 days Parox.	.....	—	8	3	1750	70 days	Treated with antipyrine also. Discharged unimproved. Refuses further treatment.
5	201	3	F.	2 days	.....	—	8	3	1750	?	Sister of 200. Also treated with anti- pyrine. Discharged unimproved.
6	232	3 6/12	M.	3 days Parox.	.....	—	8	1	500	12 days	Sputum negative.
7	325	1 9/12	M.	10 days Parox.	?	—	8	4	3750	34 days	Sputum negative. Discharged improved.
8	47	4/12	M.	7 days	? 7 days	—	Antipyrine mixture			14 days	
9	154	3 2/12	M.	21 days	? 7 days	—	Creosote mixture			35 days	
10	189	8	M.	7 days	.....	—	Antipyrine mixture			70 days	Had pertussis three years ago.
11	190	5	F.	3 days	.....	—	Antipyrine, also creosote mixture			63 days	Had pertussis three years ago.
12	191	2 4/12	M.	90 days	? 5 days	—	Antipyrine mixture			105 days	
13	195	5 7/12	M.	14 days	.....	—	Antipyrine mixture			?	Sputum negative. Discharged, only little improved.
14	196	3 5/12	M.	21 days	.....	—	Antipyrine mixture			35 days	Sputum negative. Brother of 195. Discharged with occasional cough.
15	197	6/12	F.	10 days	.....	—	Creosote mixture			30 days	Bronchitis. Discharged with slight occasional cough. Sister of 195 and 196.
16	219	1 6/12	F.	14 days	14 days	+	Creosote mixture			35 days	
17	249	2 8/12	F.	7 days	90 days	—	Antipyrine mixture			105 days	Had pertussis before. All children (5) in family have pertussis.
18	291	2 3/12	F.	12 days	.....	+	Antipyrine mixture			18 days	
19	301	3/12	M.	7 days	? 35 days	—	Antipyrine mixture			70 days	Discharged, coughing when excited only. Answers unreliable. Stopped coughing after 22 days of treatment.
20	318	6	F.	?	.....	+	Antipyrine mixture			?	

TABLE II.—PERTUSSIS CASES TREATED WITH DRUGS.

Serial No.	Case No.	Age in years.	Sex.	Duration of cough before whoop.	Duration of whoop before treatment.	Vomit- ing.	Treatment	Total duration of - whoop or parox- ysmal cough.	Remarks.
1	1	1 5/12	M.	7 days	21 days	+	Antipyrine mixture; later creosote mixt.	45 days	Creosote mixture seemed to aggravate.
2	2	3	M.	7 days	7 days	+	Antipyrine mixture; later creosote mixt.	45 days	Creosote mixture seemed to aggravate.
3	4	4 6/12	F.	7 days	4 days	+	Antipyrine mixture	31 days	
4	7	3 6/12	F.	28 days	17 days	+	Antipyrine mixture	40 days	
5	21	3	F.	Parox. 14 days	.....	—	Antipyrine mixture	42 days	Alternately improving and relapsing.
6	21	1 5/12	F.	7 days	14 days	—	Antipyrine mixture	35 days	
7	71	3	F.	21 days	21 days	+	Antipyrine mixture	28 days	Improving at time of first treatment.
8	91	4	F.	14 days	21 days	+	Antipyrine mixture	42 days	Conjunctivitis.
9	95	2	M.	14 days	21 days	+	Antipyrine mixture	28 days	
10	98	1 7/12	M.	28 days	14 days	+	Antipyrine mixture	28 days	
11	111	4 3/12	M.	28 days	14 days	+	Antipyrine mixture	18 days	
12	130	4	F.	7 days	21 days	+	Antipyrine mixture	38 days	
13	131	3	F.	7 days	21 days	+	Antipyrine mixture	38 days	Sister of 130. Improving at time of first treatment.
14	138	4	M.	7 days	14 days	+	Antipyrine mixture	21 days	
15	145	4	F.	21 days	14 days	+	Creosote	38 days	One child in family died of pertussis pneumonia.
16	163	6	F.	7 days	14 days	+	Antipyrine, also creosote	35 days	
17	169	5 6/12	M.	7 days	14 days	+	Antipyrine mixture	35 days	Whoop comes back every time medicine is stopped.
18	181	5	F.	7 days	21 days	+	Antipyrine mixture	38 days	
19	185	5 6/12	F.	7 days	14 days	+	Antipyrine mixture	56 days	Father died of tuberc. three years ago.
20	198	2	F.	7 days	7 days	+	Antipyrine and creosote mixture	21 days	
21	206	8/12	F.	.....	21 days	+	Antipyrine	42 days+	Discharged in care of private physician, still whooping and vomiting.
22	211	4 5/12	M.	7 days	21 days	+	Creosote and antipyrine	45 days	
23	212	3	M.	7 days	21 days	—	Antipyrine	25 days	Getting well (stopped vomiting) at time of first treatment.
24	213	6	F.	7 days	17 days	—	Antipyrine	25 days	Getting well (stopped vomiting) at time of first treatment.
25	214	9	M.	7 days	17 days	—	Antipyrine	25 days	
26	220	4 5/12	M.	21 days	10 days	—	Antipyrine mixture	31 days—	Transferred to private physician, still whooping.
27	268	3	F.	Parox. 17 days	.....	+	Antipyrine mixture	56 days	Improving at time of admission.
28	284	5	M.	7 days	21 days	+	Antipyrine mixture	60 days	
29	292	6	F.	7 days	16 days	+	Antipyrine mixture	41 days	Brother of 293 and 295. See vaccine list.
30	307	2 6/12	M.	14 days	21 days	+	Antipyrine mixture	31 days	
31	308	4	F.	Parox. 10 days	.....	—	Antipyrine mixture	31 days+	Discharged unimproved.
32	343	10/12	F.	Parox. 7 days	.....	+	Antipyrine mixture	14 days	
33	251	8/12	F.	Parox. 14 days	.....	+	Antipyrine mixture	70 days	Began to whoop 5 weeks after first treatment. Actually whooped for 3 weeks.
34	252	3 6/12	F.	14 days	21 days	—	Antipyrine mixture	42 days	Sister of 251 and 253. Improving at time of admission. Stopped vomiting.
35	253	5	M.	21 days	.....	—	Antipyrine mixture	42 days	Began to whoop 2½ weeks after admission.

TABLE III.—PERTUSSIS CASES TREATED WITH VACCINES.

Serial No.	Case No.	Age in years.	Sex.	Duration of cough before whoop.	Duration of whoop before treatment.	Vomit- ing.	Treatment			Total duration of whoop.	Remarks.
							No. of injections.	Type of vac- cine.	Total doses (in mil- lions.)		
1	9	1 3/12	M.	4 days	.....	—	3	7	1600	11 days	Sputum positive. Began to whoop two days after admission.
2	10	3	F.	?	8 days	±	2	7	300	16 days	
3	13	1 5/12	M.	?	11 days	—	1	7	100	14 days	Brother of 10.
4	14	3 6/12	F.	14 days	7 days	+	3	7	1600	27 days	
5	15	1 8/12	M.	7 days	7 days	—	3	7	1550	23 days	Moderate reaction. Vomited later.
6	20	2	M.	14 days	1 day	—	5	7	3800	14 days	Vomited two days after admission. Bronchitis.
7	22	1 2/12	F.	270 days	14 days	±	2	7	550	19 days	Chronic bronchitis.
8	23	4 6/12	F.	Parox. 7 days	1 day	—	4	also P.N.	75 3600	22 days	Sputum positive. Vomited seven days after admission.
9	27	3 10/12	M.	?	3-4 days	—	1	6	100	16 days	
10	28	1 3/12	F.	?	7 days	+	1	6	100	19 days	
11	33	1 5/12	F.	21 days	3 days	—	2	Antigen	500	14 days	Had stopped whooping. Began again eleven days later.
12	34	1 8/12	F.	7 days	2 days	+	1	6	50	11 days	Bronchitis; later developed pneumonia from which she recovered. Moderate reaction.
13	37	2	M.	7 days	Parox. 7 days	+	1	7	1000	18 days	Slight reaction.
14	38	12	F.	14 days	14 days	+	2	7	3000	24 days	Sister of 37.
15	41	3	M.	8 days	6 days	—	4	P.N.+	200 6100	13 days	One of the children contracted pertussis three weeks after.
16	43	11/12	M.	Parox. 14 days	1 day	+	2	7	1500	13 days	
17	46	1 2/12	M.	Parox. 7 days	.....	—	4	7	3750	14 days	
18	49	7	F.	7 days	14 days	+	1	7	500	17 days	
19	51	4	M.	Parox. 7 days	7 days	+	1	7	500	15 days	
20	53	2	M.	.....	Parox. 7 days	—	3	7	3500	28 days	
21	57	2 6/12	F.	3 days	.....	+	4	7	5875 75	45 days	Moderate reaction. In the same house there are children whooping four to six months.
22	58	4 2/12	F.	7 days	4 days	+	3	7	3500	26 days	Sister of 57.
23	60	1/12	F.	7 days	3 days	—	1	7	350	7 days	
24	61	4	F.	14 days	7 days	+	2	6	1500	11 days	
25	64	7/12	M.	35 days	7 days	—	1	7	400	14 days	Moderate reaction.
26	67	1 1/12	M.	7 days	14 days	—	3	6	3500	39 days	
27	68	4	F.	7 days	3 days	—	3	6	3500	28 days	Sister of 67.
28	70	1 4/12	M.	.....	Parox. 21 days	±	3	6	3500	28 days	
29	72	4/12	M.	7 days	21 days	+	3	6	3500	33 days	
30	74	9/12	F.	7 days	14 days	+	4	6	7500	31 days	
31	76	3 6/12	M.	7 days	14 days	+	3	6	3500	22 days	
32	82	4 6/12	F.	.....	14 days	+	2	6	1500	25 days	
33	83	7	F.	.....	21 days	+	1	6	500	26 days	
34	84	8	F.	.....	21 days	+	1	6	500	26 days	
35	85	4	F.	.....	21 days	+	1	6	500	26 days	
36	86	3	F.	.....	21 days	+	1	6	500	26 days	
37	88	9/12	F.	7 days	7 days	+	1	6	500	14 days	
38	89	4 2/12	M.	7 days	10 days	+	1	6	400	25 days	
39	92	2	F.	7 days	1 day	—	2	2 Sero- bacterin 6	C&D 3000	24 days+	One sister had pertussis-pneumonia; serobacterins aggravated condition. Contracted P. P. in a hospital and died.
40	94	5/12	M.	14 days	21 days	+	1	6	500	26 days	Moderate reaction.
41	97	1 8/12	M.	7 days	7 days	+	2	P.N.+ 75	1500	12 days	Had bronchitis during all winter.
42	105	2 6/12	F.	4 days	10 days	+	2	2 Sero- bacterin A+B 6	1500	44 days	After having stopped for two weeks whoop returned.
43	106	11/12	M.	.....	Parox. 21 days	—	3	7	3500	42 days	Vomited during treatment.
44	107	2	F.	.....	21 days	+	2	7	1500	28 days	Epistaxis frequent.
45	108	1/12	F.	7 days	7 days	+	2	6	1500	19 days	
46	109	2 6/12	F.	14 days	14 days	+	3	6	3500	55 days	
47	110	4/12	M.	2 days	3 days	—	3	6 & 8	5500	44 days	Brother of 109.
48	113	3	M.	7 days	14 days	+	4	Sero- bacter. 1/2 A	BC&D 36 days	Colored child.	
49	114	4	F.	7 days	7 days	+	4	Sero- bacter. 1/2 A	BC&D 29 days	Colored child.	
50	120	11/12	M.	.....	Parox. 7 days	—	3	7	3500	26 days	
51	122	4	F.	7 days	14 days	+	2	6	1500	43 days	Child faints during attacks.
52	125	4/12	F.	7 days	7 days	+	3	1	3500	31 days	
53	127	6	M.	7 days	21 days	+	1	6	500	30 days	
54	129	2	M.	7 days	14 days	+	2	6	1500	36 days	
55	131	1 3/12	F.	7 days	17 days	—	3	7	3500	41 days	
56	134	2 5/12	F.	28 days	14 days	+	3	1	3500	25 days	
57	135	8	F.	28 days	1 day	±	3	6	3500	15 days	
58	136	11/12	F.	7 days	7 days	±	2	6	1500	16 days	
59	140	8/12	F.	84 days	21 days	+	6	Antigen 6 & 7	150	111 days+	Mother has syphilis in the tertiary stage.
60	150	9/12	F.	21 days	14 days	+	2	6	1500	21 days	Almost asphyxiated during one attack. Artificial respiration employed.
61	153	3	F.	14 days	7 days	—	1	Antigen 7	3750	18 days+	Vomited during treatment. Discharged unimproved.
62	152	2 6/12	M.	28 days	14 days	+	1	7	850	25 days+	Discharged unimproved. Mother pre- fers "gas house" treatment.
63	156	7	F.	7 days	21 days	±	3	3	1750	30 days	Vaccine nine months old.
64	157	3	M.	14 days	7 days	+	3	3	1750	16 days	Brother of 156
65	161	6/12	F.	.....	7 days	—	3	8	3000	32 days	
66	162	3	F.	7 days	7 days	—	3	also P.N.&P. 8	3000 500	36 days	Sister of 161.
67	165	9	M.	7 days	14 days	+	1	6	500	21 days	
68	166	4	M.	7 days	7 days	—	1	6	500	14 days	Cousin of 165 living in same house.
69	171	1 2/12	M.	3 days	21 days	+	2	6	1500	28 days	An older brother whooped for 12 weeks.
70	174	3	F.	14 days	14 days	+	3	6 & 8	3500	24 days	

TABLE III.—PERTUSSIS CASES TREATED WITH VACCINES (Continued).

Serial No.	Case No.	Age in years.	Sex.	Duration of cough before whoop.	Duration of whoop before treatment.	Vomit- ing.	Treatment		Total doses (in mil- lions.)	Total tion of dura- whoop.	Remarks.
							No. of inec- tions.	Type of vac- cine.			
71	175	6	F.	14 days	7 days	+	3	6 & 8	3500	17 days	Sister of 174.
72	180	2/12	F.	7 days	7 days	+	2	1 & 8	1500	25 days	
73	182	1 11/12	F.	7 days	7 days	+	5	6-1-8	3750	23 days	Began to whoop 4 days after admission. Actually whooped only 12 days. Whooped hardly 8 days after first in- jection.
74	183	2/12	F.	.....	Parox.	+	5	6-1-8	10750	19 days	
75	184	1 9/12	F.	7 days	4 days	+	4	6 & 8	7500	25 days	Sister of 174.
76	209	3	M.	7 days	7 days	+	3	8	1750	14 days	
77	217	6/12	F.	14 days	14 days	—	3	8	750	26 days	Sister of 174.
78	222	1 2/12	M.	7 days	1 day	+	2	7+P.N.	1000	5 days	
79	224	3/12	F.	2 days	4 days	+	3	6 & 8	1750	47 days	Sister of 174.
80	229	1 8/12	M.	.....	Parox.	—	2	8	750	23 days	
81	231	11/12	F.	.....	Parox.	+	1	8	250	30 days	Sister of 174.
82	233	5/12	F.	4 days	21 days	+	2	8	750	8 days	
83	234	1/12	F.	.....	Parox.	±	2	8	300	11 days	One brother came for treatment in sixth week of whoop—17 days.
84	236	4 6/12	M.	14 days	7 days	+	3	8	1750	17 days	
85	241	3	M.	.....	Parox.	±	2	8	750	22 days	Sister of 174.
86	243	6 6/12	F.	7 days	7 days	+	3	8	1750	25 days	
87	245	6 6/12	F.	21 days	1 day	±	3	8	1750	10 days	Developed double pneumonia after sec- ond injection. Complement fixation test positive.
88	246	3 2/12	F.	7 days	14 days	—	5	P.N.+P.	1500	71 days	
89	254	2/12	F.	.....	Parox.	±	1	7	650	42 days	Sister of 270.
90	270	1 3/12	M.	7 days	14 days	+	3	8	3500	37 days	
91	271	5	F.	7 days	14 days	+	3	8	3500	22 days	Sister of 270.
92	273	3 6/12	F.	7 days	14 days	+	3	8	1750	29 days	
93	274	1 7/12	M.	7 days	5 days	—	3	8	1750	18 days	Brother of 273. } Mother expected dis- ease to last 18 weeks.
94	281	3/12	M.	.....	Parox.	—	3	8	3500	24 days	
95	283	1	M.	7 days	8 days	+	1	8	3750	38 days	This child had the severest attacks we have witnessed, also most frequent.
96	286	10/12	F.	7 days	7 days	+	3	8	1750	12 days	
97	287	2 6/12	F.	7 days	14 days	+	3	8	1750	19 days	Three children in family untreated. Whooped for about 90 days.
98	288	4	F.	7 days	21 days	+	3	8	1750	26 days	
99	293	1	F.	.....	Parox.	—	2	8	750	30 days	Chronic bronchitis. Brother of 293. Admitted to our ward 3. Discharged improved, but still whooping.
100	295	5	M.	7 days	7 days	+	3	8	1750	56 days	
101	294	3 6/12	M.	7 days	7 days	+	2	8	750	23 days	Brother of 296. Also admitted to ward 3. Discharged cured.
102	297	3	M.	7 days	14 days	+	1	8	250	20 days	
103	299	3 6/12	F.	7 days	7 days	+	3	8	1750	24 days	Sister of 299.
104	300	4 8/12	F.	7 days	7 days	+	3	8	1750	24 days	
105	306	6/12	F.	1 day	10 days	—	4	8	3750	16 days	Sputum positive. Contracted disease 8 weeks after sister, 241, began to whoop.
106	315	5 6/12	F.	7 days	7 days	+	3	8	1750	17 days	
107	323	3	M.	21 days	7 days	—	2	8	750	13 days	Sister of 323.
108	326	9/12	F.	6 days	1 day	—	2	8	750	18 days	
109	329	1/12	F.	7 days	1 day	+	2	8	150	4 days	Sister of 323.
110	335	1/12	F.	.....	14 days	+	1	8	200	21 days	
111	347	1 10/12	M.	7 days	7 days	±	1	8	500	24 days	Sputum positive. Eleven days after injection contracted pneumonia from which he recovered.
112	353	2 3/12	F.	2 days	4 days	+	3	8	1750	9 days	
113	354	11/12	F.	7 days	3 days	+	1	8	250	24 days	Sister of 299.
114	359	4	F.	2 days	14 days	±	4	8	3750	30 days	
115	361	3 6/12	F.	7 days	7 days	+	3	8	1750	14 days	Sister of 299.

TABLE IV.—PERTUSSIS PROPHYLACTIC CASES.

Serial No.	Case No.	Age (in years.)	Sex.	Duration of exposure.	Symptoms.	Treatment		Total doses.	Result.	Remarks.
						No. of inec- tions.	Type of vac- cine.			
1	18	5/12	F.	8 days	Coughing for 3 days	3	7	1600	Stopped coughing within 2 weeks. No whoop. No vomiting.	Brother of this patient seen in consultation with Dr. T. suffering from pertussis-pneumonia.
2	30	8	F.	14 days	Coughing for 7 days	3	7	5100	No whoop. No vomiting. Stopped coughing after injection.	One sister has a very severe attack of pertussis. One brother, age 4 6/12, free from disease.
3	69	7	M.	14 days	.....	2	6	1500	No symptoms.	One brother whoops for 2 weeks. Another 3 days.
4	77	2 6/12	M.	7 days	Coughing 7 days	1	1	500	No whoop. No vomiting.	One brother died of pertussis in a hospital. Moderate reaction. Mother refuses further treatment.
5	79	1 6/12	F.	14 days	Slight cough	3	6	3000	No whoop. No vomiting. Cough stopped in a month.	Moderate reaction. One brother died of tuberc.
6	100	9	M.	42 days	"Croupy" coughing one week	1	6	500	No whoop. No vomiting. Stopped coughing 2 weeks later.	Slight reaction.
7	102	1/12	M.	14 days	.....	3	6	3500	No symptoms.	Slight reaction. Sister and brother have pertussis for 2 and 3 weeks, respectively.
8	128	10/12	F.	21 days	Coughing 7 days	1	6	500	No whoop. No vomiting. Stopped coughing after injection.	Marasmus; died in a hospital 6 weeks later from intestinal complications and pneumonia.
9	132	1/12	M.	?	Coughing 1 day	1	6	500	Began to whoop and vomit 12 days after injection.	Sister (139) whooping for 9 days. Sister of 140.
12	116	6 4/12	F.	9 days	.....	1	6	500	No symptoms.	Exposed to older brother.
11	115	3 10/12	F.	9 days	.....	1	6	500	No symptoms.	
10	141	2 6/12	M.	35 days	Paroxysmal coughing for 2 days	1	6	500	Cough stopped 3 days after injection.	
13	118	1 2/12	M.	7 days	Coughing 5 days	1	6	500	Cough stopped 3 days after injection.	

TABLE IV. PERTUSSIS PROPHYLACTIC CASES (Continued).

Serial No.	Case No.	Age (in years.)	Sex.	Duration of exposure.	Symptoms.	Treatment		Total doses.	Result.	Remarks.
						No. of injections.	Type of vaccine.			
14	149	4 6/12	M.	6 days	Coughing 3 days	2	6	1500	Stopped coughing 4 days after last injection.	Vomited several times on day of second injection.
15	151	1 2/12	M.	14 days	Coughing 7 days	1	7	500	Cough stopped a few days later.	Slight reaction.
16	167	2	F.	7 days	Paroxysmal coughing 7 days	1	Pn.+7	500	Began to whoop 2 weeks after injection.	Older brother whooping for one week.
17	179	2/12	F.	5 days	Coughs and vomits 2 days	3	Pn.+7 also 8	3500	No whoop. Stopped vomiting 5 days after last injection.	
18	199	4	F.	7 days	Coughing 5 days	3	8	1750	Stopped coughing after last injection.	
19	202	3/12	M.	28 days	Paroxysmal coughing for 7 days	1	8	500	Stopped coughing 3 weeks after injection.	
20	208	1 2/12	F.	7 days	.....	3	8	3500	No symptoms.	
21	218	4 6/12	F.	14 days	Coughing 10 days	1	8	500	No whoop. No vomiting.	
22	225	4	M.	4 days	Whooping? 4 days	2	6 & 8	1500	Began to whoop and vomit.	
23	226	3/12	M.	4 days	Paroxysmal cough 4 days	2	6 & 8	1500	Began to whoop and vomit.	Brother of 225.
24	237	2 6/12	F.	7 days	.....	2	8	1500	No symptoms.	Sister of 225 and 226.
25	244	1 5/12	F.	7 days	Coughing 4 days	1	8	500	Began to whoop 2 weeks after first injection.	Interval between first and second injection—16 days.
26	247	11/12	F.	14 days	Coughing 7 days	(3)	8	(3500)	Stopped coughing 5 days after last injection.	
27	248	11	F.	14 days	.....	2	8	1500	No symptoms.	Sister of 247 and 298.
28	250	8/12	F.	2 days	Coughing 2 days	1	8	500	Stopped coughing fifth day after injection.	
29	272	3	F.	14 days	Coughing 4-5 days	3	8	3500	Stopped coughing. No other symptoms.	Vomited between injections.
30	280	1 8/12	M.	14 days	Coughing 5-6 days	3	8	3500	Stopped coughing after second injection	Brother of 272.
31	298	8	F.	1 day	.....	3	8	3500	No symptoms.	Sister of 248 (see above). Difference in time of exposure due to absence from home.
32	309	2/12	F.	10 days	Coughing 2 days	Antipyrine mixture			Began to whoop and vomit after 4 days' treatment.	Mother refused vaccine treatment.
33	319	2	F.	4 days	Coughing 2 days	1	8	500	Stopped coughing 3 days after injection.	Slight reaction. Mother calls the child's cough, whooping, because other child began in a similar manner and is whooping severely now.
34	330	6	M.	1 day	.....	2	8	3000	No symptoms.	

dence of the whoop or paroxysmal cough with vomiting. The isolation of the Bordet-Gengou bacillus from the sputum clinches the diagnosis in doubtful cases, but a negative sputum does not exclude whooping cough. On account of other Gram negative bacilli very frequently found in the sputa of whoopers, one cannot diagnose pertussis from the bacterioscopic picture alone. The sputum must be planted on a special blood-agar-glycerin-potato medium and isolated from other organisms having the same morphological and staining characteristics.

The complement fixation test, notwithstanding statements to the contrary, has not proved, so far, to be of any practical value in the diagnosis of pertussis for therapeutic indications. In over a hundred cases studied at the research laboratory by Miss Olmstead and myself, we found positive complement fixation in about fifty per cent., and not earlier than the fourth day of the paroxysmal stage, i. e., at a time when anybody could make the diagnosis if it depended on the whoop.

These negative cases are probably responsible for the extremes of opinion regarding vaccine treatment entertained by private physicians who treat a limited number of cases. A child with a nonspecific cough accompanied by regurgitation and magnified by a timorous parent into paroxysmal attacks with vomiting, is apt to improve "miraculously" after the second dose of vaccine, while a severe bronchitis simulating whooping cough will respond to vaccine treatment as much as to the same quantity of Croton water.

Doubtful cases. The same considerations may be

applied to the twenty doubtful cases. From the appended Table I, showing both drug and vaccine treatment, it would not be wise to draw any definite conclusion as to the superiority of one over the other. Cases LIX and CCXXXII, for instance had a total duration of the whoop of sixteen and twelve days respectively, which would have been ascribed to vaccine therapy if Case XLVII, treated with antipyrine, had not had an equally short paroxysmal stage.

It is possible that some of these doubtful cases were abortive forms of the disease. When testing a therapeutic remedy, however, one cannot be too careful in the diagnosis, and doubtful cases running an atypical course cannot form a basis to such an investigation.

CASES TREATED WITH DRUGS.

Of the seventy-six cases treated with drugs, only thirty-five have been tabulated. The reasons the others were omitted is the fact that the whoop had lasted longer than in the average case at the time they came for treatment. In such instances it is difficult to tell whether the paroxysms would have disappeared by themselves, or had been affected by the treatment. What conclusions, for instance, could one draw from a case of whooping cough which had lasted for eight weeks and in which the whoop stopped after three weeks' treatment. A basis of comparison with the vaccine cases had to be found and I have selected, somewhat arbitrarily, twenty-one days as the longest duration which would admit of comparative study. This limit al-

lows nine days during which the drug or vaccine can be effective, and thus terminate the whoop within the average duration of one month.

In adding up the pertussis cases of less than three weeks' duration, treated with drugs, we find an average of *forty days*, or ten days more than the authorities allow for the paroxysmal stage of whooping cough.

Most of the cases were treated with an antipyrine mixture of the following composition:

R Antipyrini,0.065—gr. j;
Sodii bromidi,0.200—gr. iij;
Syrup aurantii florum, ad.....4.00—ad 3i.
M. ft. mistura. Sig.: This dose may be given to a child of one year as often as every two hours.

Children take the foregoing mixture readily on account of its sweet taste and agreeable flavor. The creosote mixture had to be discontinued, owing to its gastrointestinal disturbances which even small quantities were liable to produce.

CASES TREATED WITH DRUGS AND VACCINES.

For the same reason as the doubtful ones, we cannot include these cases in our considerations regarding either the worth of antipyrine or vaccines. They are mostly therapeutic failures from either point of view. Many had complications and their attendance at the clinic was fitful. Some, started on antipyrine, were put on vaccine at the urgent request of the parent who had happened to see some vaccine cases improving more rapidly. Others were put on vaccines when a rise of temperature or other symptoms made us fear the onset of pneumonia. Still others, started on antigen No. 7, or too large doses of stock vaccines which produced some general reaction, had to be put on drug treatment to soothe matters.

Only four of these cases had a paroxysmal stage of less than average duration. Case VIII started on creosote and finishing on vaccine, whooped for twenty-eight days. Cases LXXXVII and CXXVI, starting with vaccine, ended with creosote having a paroxysmal stage of twenty-four and twenty-five days. Case CCLVI, after one injection of vaccine, refused further injections and was put on antipyrine, whooped for twenty-nine days; while Case CCLXXXII, requested antipyrine after submitting to three injections, and whooped for only eighteen days.

PERTUSSIS CASES TREATED WITH VACCINES.

(TABLE III.)

Of the 138 cases treated with vaccines, 115 came to us within the first three weeks of the paroxysmal stage. The average duration was twenty-five days. This figure could have been much reduced if such cases as CXL, for instance, whose mother has syphilis and whose low resistance can be guessed from the long duration of the cough (eighty-four days) which preceded the whoop. This child came to the clinic just on the twenty-first day of the whoop as if to test our impartiality. It whooped for more than 111 days and was finally discharged with an occasional whoop.

Nevertheless, the vaccine treatment seems to have decreased the paroxysmal stage, compared to the drug treatment, by over two weeks. What is more significant, however, than the shortening of the duration, is the prompt amelioration which follows

the administration of the vaccine in nearly all cases. The whoop becomes milder and in the last weeks consists often of an occasional paroxysm only. In some cases, however, especially when a moderate reaction follows the first injection, a slight aggravation takes place in from twenty-four to forty-eight hours. The mother should be warned of such a possible aggravation if one cares to retain the patient.

The course of a pertussis case treated with vaccine is usually as follows:

1. Decrease in the severity of the night paroxysms.

2. Vomiting stops—severity of day paroxysms abates.

3. Night paroxysms stop—day paroxysms reduced in number.

4. At the end of first week of treatment, whoops are about twenty-five per cent. of their former frequency. Mother refuses further vaccine treatment, as she thinks that child will get well anyway.

The cases treated with antipyrine, as a rule, show first a decrease in the *number* not the *severity* of the paroxysms. Vomiting is apt to continue until or after the whoop stops in a rather abrupt fashion. Both are apt to return as soon as the medicine is withdrawn or on the least provocation due to a new "cold," gastrointestinal trouble, etc. Such relapses are rare in cases treated with vaccines.

The number of injections given exceeded three only in a few cases. As a rule the parent will refuse further "needle" treatment as soon as there is a marked amelioration in the character and number of paroxysms. This actually prevents us from ascertaining the full worth of the vaccine, and it is a drawback which could disappear only in hospital treatment when the patient is not subject to the parents' control.

Complications. Among our vaccine patients, four developed pneumonia. Three of these (aged eleven months, twenty months, and three years respectively) made perfect recoveries. The fourth (Case XCII, two years old) treated with a commercial, so called sensitized vaccine, drifted away from the clinic, partly on account of the lack of improvement and partly because the mother who was at term was unable to bring the child for treatment. We finally heard from the neighbors that the child had been taken to a hospital, where it contracted pneumonia and died.

In view of the fact that fully one third of our vaccine patients were less than one year old, it is remarkable that we had no more pneumonia cases and that, with the exception of Case CXXXII, listed in Table IV, we had no other fatalities.

PROPHYLACTIC CASES (TABLE IV).

Of the thirty-four cases tabulated only nine could be called strictly prophylactic, i. e., exposed to pertussis, but showing as yet no symptoms of the disease. The others had either a plain cough or a mildly paroxysmal one with vomiting, and the treatment was given with the view of aborting the disease rather than preventing an infection which already seemed to exist.

The nine strictly prophylactic cases gave histories of exposure from one to fourteen days. After re-

ceiving the three injections, they have remained without any symptoms up to date (two to four months after immunization).

The remaining twenty-five cases resulted as follows: Nineteen patients stopped coughing, during, or soon after treatment. One of these has no significance as he had been exposed forty-two days and probably would not have contracted the disease in any case. The vaccine was given to allay the mother's apprehension.

One case treated with antipyrine soon developed the whoop. In the remaining five (15.1 per cent.) the vaccine did not seem to be able to abort the disease. Of these, Case cxxxii (one month old and suffering from marasmus) referred to above, contracted pneumonia and was fatal.

That marasmus in itself is not incompatible with recovery from whooping cough, was illustrated by the case of Doctor Van Der Veer at the Lincoln Hospital. The three month old colored child weighing only seven pounds fourteen ounces made a perfect recovery under vaccine treatment and appropriate feeding, and was gaining weight at the end of a month.

SUMMARY AND CONCLUSIONS.

If we admit the Bordet-Gengou etiology of pertussis, we must free ourselves from a few superstitions regarding whooping cough. One of these is the infectiousness of the paroxysmal stage, which, like that of the scales in scarlet fever, seems to have been unduly exaggerated. The fact that the Bordet-Gengou bacillus has been most often found in the sputum of the catarrhal and rarely later than the first week of the paroxysmal stage, points to the early part of the disease as the most infectious and there would seem to be no necessity for the child to be kept in the house for more than a week after the whoop appears. If accompanied by a competent guardian who takes care to collect the expectoration in a paper bag to be subsequently burned, and sees to it that the child does not whoop or sneeze in other children's faces, the pertussis patient may be allowed to be out of doors from the beginning.

The placarding of homes where pertussis exists and the wearing of arm bands by the whoopers which had been advocated by some pediatricists, also seems to be of doubtful utility in all except the acute cases. Not because such measures are annoying or humiliating to the individual sufferer, but on account of the impossibility of reaching the abortive cases, those in the catarrhal stage and the healthy carriers who are, perhaps, the most dangerous disseminators of infection.

The necessity of more whooping cough clinics and of a pertussis hospital has become more and more evident as these studies have progressed.

In view of the fact that the vaccines have given some encouraging results in the prophylaxis and treatment of pertussis, it would be advisable that private practitioners collaborate with the Bureau of Laboratories in a more extensive test of these vaccines. The necessary quantity accompanied by directions for administration and a history card will be given to any city practitioner on demand, who promises to report the results obtained.

In doubtful cases the sputum may be sent to the research laboratory for diagnosis. To be of any

value, the sputum must be obtained early in the disease from a bronchus; not mere saliva from the mouth mixed with food particles. The characteristic sputum is obtained by inducing a paroxysm by tickling the child's fauces with a wooden tongue depressor and appears as a grayish white tenacious plug of mucus.

Many physicians seem to underestimate the seriousness of the disease and fail to report cases of whooping cough to the department. In a recent investigation we found that only about twenty-six per cent. of the cases in a limited area were reported. This figure is too high, as probably not more than ten per cent. are reported in greater New York. Vital statistics is the basis upon which rest all future plans of public sanitation, and I trust that the practitioners in the city will report promptly all cases of whooping cough occurring in their practice. The following conclusions may be drawn from this work:

1. Pertussis stock vaccines as prepared by the Bureau of Laboratories seem to have a prophylactic value when given in high doses.

2. In the treatment of pertussis, these vaccines seem to have shortened the duration and severity of the paroxysmal stage; the average duration of the whoop being twenty-five days, compared to forty days of those treated with drugs.

3. Further experiments with the view of obtaining more effective vaccines and a closer cooperation of the profession in public health education, may help in the eradication of pertussis, this scourge of childhood which kills yearly ten thousand American children.

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1651 WASHINGTON AVENUE.

OPTIC NEURITIS CONCURRENT WITH WHOOPING COUGH.*

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Optic neuritis is not an uncommon condition. It is, always has been, and always will be an intensely interesting subject. Of the causes of this condition there are many. Occasionally it occurs without apparent cause. It may be hereditary, but is usually secondary to other conditions. For instance, it may be caused by poisons in the blood, such as produce polyneuritis—alcohol, lead, arsenic, mercury, and tobacco. It is the pathological state present in the so called toxic amblyopia and in the condition described as retrobulbar neuritis. It may occur as a sequel of any of the infectious diseases. In severe chronic anemia, pernicious anemia, leucocythemia, and diabetes it may also appear. It is a frequent symptom of nephritis. Some suppose it to be also caused by rheumatism, gout, or taking cold. It may be secondary to a meningitis in which the inflammation extends along the sheath of the nerve. Its most common cause, however, is pressure within the skull

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exerted by tumor, abscess or syphilitic exudations along the base or by the pressure of fluid in the ventricles.

As to the actual way in which this condition is produced, there is great difference of opinion. Pressure within the skull producing edema of the nerve trunk, and secondary neuritis as described by Parinaud, or direct infection of the nerve by products of disease within the brain as held by Lieber and Deutschmann, are some of the causes given. We thus have a multitude of causes, and it is my object to provoke discussion as to the cause of the neuritis in my case.

This case interests me intensely, as the patient happens to be one of my sons, a bright little fellow now nine years of age, and one of three. This boy is a twin of normal birth. He has always been well, with the exception of having had measles, chicken pox, and mumps, from which he made a complete recovery. In the intervals he had always been sturdy and strong. In fact he had been the "live wire" of the trio. Strong, active, and bubbling over with the bottled up vigor of youth, he always was cheerful and good natured. His weight was normal, muscular system well developed, complexion dark, brown eyes, and no bodily deformities. He is a boy who has always loved rough sports.

This normal condition of affairs continued with this little fellow until December 15th of last year, when he was sent home from the Friends' School in Green Street because of the development of whooping cough in the school, he being unfortunate enough to contract it. His case was one of unusual severity. Many paroxysms occurred daily, and these were very severe. He lost some weight during this time, which I attributed to the fact that he vomited his meals following his paroxysms.

On or about the latter part of February, 1914, he and his brother were still home from school, not yet having recovered, and, while sledding in the back yard, Charles, the patient, ran into the hydrant, striking his head. While he complained of it severely, it did not render him unconscious. He slept fairly well all night save for two or three paroxysms of coughing and awoke about 7.45 a. m. the next day. Rising up in bed he said, "I feel sick, Dad, I am going to vomit," which he did.

I examined him carefully and found his pulse and temperature normal, his tongue not much coated, but thought that he probably had indigestion and gave him a dose of calomel. He had been about the house a few hours when he complained of intense pain over the right eye and dizziness. This pain was very sharp and came on in paroxysms. It was so sharp that it would cause the little fellow to bury his head down on his pillow or on the floor, wherever he happened to be. There was considerable lacrymation from the right eye at these times. He had no tenderness over either his left or right orbit. He had no mastoid tenderness and no sore throat. These attacks of severe pain would be followed by nausea and vomiting. That he had nausea was plainly visible, because, first, he would turn pale and perspire and, secondly, he said he felt sick at the stomach. This condition continued for a number of days, his temperature remaining normal.

I had at first thought it was an attack of indigestion

and later thought it was neuralgic. I had given him all the antineuralgic remedies without success. At last, failing to relieve him, I became apprehensive of some other condition and decided to test his vision myself, and I found by rough tests that he had impaired vision.

I then took him to my friend, Dr. William M. Sweet, who examined him carefully and found he had a neuroretinitis, more severe in the right eye than in the left. In order to make sure of his diagnosis, Doctor Sweet had a second ophthalmologist, Dr. H. F. Hansell, see him the same day, and he concurred in the diagnosis. Doctor Sweet thought at this time this condition might be renal, and suggested I have Dr. E. E. Graham see him also. Doctor Graham did not arrive at a diagnosis, not having had time to study his case, but suggested an x ray examination.

After the visit to Doctor Sweet, as the little fellow was coming home, he started to vomit with nausea and vomited for a period from ten to twelve hours almost everything he was given, finally falling asleep from exhaustion. The next day his temperature and pulse were normal, but he was dull mentally and somewhat irritable when aroused, although not unconscious. A urinary examination at this time showed absolutely nothing pathological.

About this time I had Dr. George A. Cameron, the family physician, see him with me. He was also very uncertain as to what the condition might be. The boy had no motor palsies, no sensory symptoms save pain, no Babinski; Kernig's sign was negative, there was no opisthotonos, and the pupils were equal and reacted to light and accommodation. The patient remained in this dull and drowsy state all day. For the next three days he had almost complete suppression of urine, passing eight ounces one twenty-four hours, eight ounces another twenty-four hours, and nine ounces the next twenty-four hours. A careful examination showed no albumin, no sugar, and no casts. The temperature and pulse were still normal. The little fellow paid very little attention to what went on about him.

The next day he was not so dull. The urinary output was sixteen ounces. The following day the urinary output was twenty ounces. Temperature and pulse were still normal, skin was warm and dry, and urinary output increasing from day to day until it became practically normal. Repeated examinations failed to show any kidney lesion. He still had no palsies. From day to day he kept on improving until about the seventeenth or eighteenth day after the onset of his illness, when he awoke after a good night's sleep and sitting up in bed exclaimed, "Say, Dad, I am all right now. Can't I have some breakfast?" He made from this time on an uninterrupted recovery and has not been ill since.

Of course, his eye condition is not good. Still one eye, his left, shows a vision of 20/20 and the other something like 20/100. His vision is very much improved and still improving. He has been going to school and doing splendid work in school, and is as strong as a horse considering his age. He eats well, sleeps well, plays hard, and is in every sense a boy from the top of his head to the soles of his feet.

Now, why I have reported this case is in hopes that some reader may be able to throw some light on this condition. Was this condition caused by trauma or hemorrhage or an inflammatory condition affecting the sphenoidal sinus? The total absence of all motor and sensory symptoms, except the pain and the fact that the child remained well for nearly a year following, almost excludes a growth. Did he have a meningitis? If so, all the cardinal symptoms were lacking.¹

I confess that I do not know what he had, nor did either of the men who saw him. It is with the hope of provoking discussion of the peculiar state of affairs occurring in this little fellow that I report this unique case, trusting that it may be of some value to me and also to those who hear it. I am much indebted to Dr. George A. Cameron for his skill in handling the little fellow, also to Doctor Sweet, Doctor Hansell, and Doctor Graham for invaluable suggestions and opinions.

130 WEST CHELTEN AVENUE.

FORCEPS.

Indications and Contraindications; Based upon a Study of 6,000 Obstetric Cases at the Jewish Maternity Hospital.

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Forceps, from the time of its introduction in obstetrics, has been the most common means of overcoming protracted labor, whether the indication was a markedly or slightly contracted pelvis, or a simple inertia, whether it was eclampsia or cardiac disease, whether it was merely the desire of the patient to avoid prolonged pain; save for the comparatively rare employment of version, forceps, in the early days, offered the only recourse to the obstetrician. While it is true that Cæsarean section and symphysiotomy were known and occasionally practised, their exceedingly high mortality in the preaseptic days, made forceps the operation of both choice and necessity. That it was not altogether a safe operation, especially the high forceps, we may judge from our present day results.

Chamberlain, in 1600, invented the forceps which, with few modifications, is the instrument in use today. It was not until 1747 that Louret and Smellie added the pelvic curve, and in 1847 that Tarnier introduced the axis traction principle, though the latter has never been universally accepted as an improvement. While forceps, ideally, is a mechanical attempt to aid the physiological advance of the retarded fetus, even going so far as to follow the various axes of the pelvis, it never has been and never can be entirely physiological. Its results are always pathological; pathological inasmuch as there is invariably traumatism to infant and mother, or both. In low forceps this traumatism may be

negligible; in high forceps may be and frequently is very grave. This being true, our efforts should be directed toward limiting the application of forceps and substituting other procedures, whenever possible, which either modify or eliminate these dangers.

Our paper will be directed, therefore, toward the consideration of the indications for forceps, with a proper regard to the benefits and dangers of their use, and bearing in mind all other obstetric procedures which should be substituted when possible; perhaps we should say to the limited indications for the use of forceps in obstetrics today.

Cases requiring the application of forceps may be divided into two great classes:

1. In which there exists a disproportion in size between the presenting part (head) and pelvis.
2. In which no such disproportion exists. The latter group of cases usually presents few, if any, difficulties or problems, either in the matter of technic or diagnosis of indications.

The indications may be subdivided into:

- A.—1. Inertia.
2. Exhaustion.
3. Cardiac disease—eclampsia, etc.
- B.—1. Dry labor.
2. Transverse or posterior position of head.
3. Cord about neck—undiagnosed.

Until a few years ago, this group of cases depended, almost entirely, for delivery upon the application of forceps. However, since the introduction of pituitrin into obstetrics, in 1909, we have been able, in a large majority of cases, to eliminate the use of forceps. Pituitrin furnishes an ideal substitute; for instead of a mechanical expedient, we have a therapeutic agent which reproduces the natural physiological processes. We must not, on the other hand, consider pituitrin to be a panacea for obstetric ills. We must realize that it, too, has its limitations and contraindications, and that its abuse is fraught with more dangers than the forceps itself. After an extensive experience with this drug, in a series of over 300 cases, we find that its use is limited to those cases in which there is a dilated or dilatable cervix; presenting part well engaged; normal fetal heart; and normal bony outlet. It is more efficacious in multiparæ than in primiparæ. The contraindications to its use are:

1. Any constitutional condition in which an appreciable rise in blood pressure might prove dangerous, for pituitrin raises the pressure from twenty to forty mm. Hg.
2. In extensive thinning of the uterine wall, especially in cases of previous operations upon the uterus.
3. In cases of obstruction of the outlet by tumors, fibroids, etc.
4. In all cases of contracted pelvis in which the presenting part is not well engaged.
5. In cases of pendulous abdomen in which the uterus is tilted forward during labor pains.

We wish to call attention to the lowered forceps percentage in the last two years as shown in the table appended, which we must ascribe entirely to the judicious administration of the drug. With its contraindications clearly before us, we have at our command a most ideal and valuable substitute for forceps.

The cases in which disproportion in size of head and pelvis exists, more than any other form of obstetrical abnormalities offer great difficulties to the obstetrician and present grave problems, each case

¹In discussing the case, Dr. W. G. Spilber suggested that the patient had an attack of encephalitis. He regarded whooping cough as a serious malady capable of producing encephalitis.

remaining an individual one requiring careful judgment in its management. It would, perhaps, at this point be best to state that we prefer not using the term "contracted pelvis," for we are not concerned with the actual measurements of the pelvis *per se*, but rather with the existing disproportion between the presenting part (head) and the birth canal. For convenience, the degrees of disproportion may be divided into absolute, moderate, and slight.

Every experienced obstetrician has had cases in which, because of supposed disparity between the size of head and the pelvis, or because of a diminution in size of the pelvic diameters compared to the arbitrary classification, he has decided the case to be one requiring the applications of forceps. Following this decision, in the interval required to procure consent or to consult with relatives, or even the time consumed in preparing the patient and himself, he has found marked progress, and later spontaneous delivery has occurred. We personally know of a case of marked contracted pelvis in which the visiting and consulting surgeons concurred in the necessity for performing a Cæsarean section. While the surgeons were scrubbing up and discussing the steps of the operation to be performed, the patient was delivered spontaneously. It may be of interest to learn that this patient had a previous Cæsarean section. Such instances are by no means as rare as one would suppose.

From the above mentioned facts we are brought to a realization of Nature's own attempts to meet the altered conditions as they exist in cases of disproportion between the size of head and pelvis. For the same reason, we must acknowledge the inadequacy of our arbitrary standard of classification of contracted pelvises. The spontaneous termination of labor in a case of disproportion can occur only by the giving of the bony pelvis, or else by an alteration in the size and shape of the head. The former cannot occur, the latter always in part, and frequently, to a great extent, if given time enough. This brings us to our leading premise—that every such case must be given a test of labor.

In recent years our attitude in cases of slight and moderate disproportion has undergone great changes, for as in other branches of medicine, conservatism has been in a large measure the guiding point in the management of our patients. Formerly in all the milder forms of dystocia, as soon as diagnosed, immediate interference was thought necessary in order to have labor terminated. It eliminated a proper physiological test for labor, and the results were very unfavorable for both mother and child. More recently, it has been our plan to allow the patient the full benefit of doubt, and permit her to go through a very strenuous test of labor before deciding upon interference.

By test of labor, as carried out by us, we understand, more especially in primiparæ, that the patient shall have been in actual labor for at least twenty-four hours, the fetal head shall have undergone some moulding, and the cervix thinned out and either dilated or dilatable. If, then, the natural forces fail to result in spontaneous delivery, artificial termination of labor by forceps is resorted to. On the other hand, should we find that, during this period there has been no attempt on the part of the head to engage, and that the cervix has not dilated,

the use of the forceps is immediately eliminated, for the existing disproportion is too great and the use of forceps in this class of cases is dangerous not only to the child, but also to the mother. The injuries to the pelvic floor are often so extensive that attempts to repair are futile, and eventually produce permanent invalidism. It is our experience that the greatest percentage of cases of dystocia due to relative disproportion between the presenting part and pelvis will, if given a proper test of labor, progress to a point where delivery, even though accomplished artificially, will result favorably both to mother and child. We believe, therefore, that the older teaching of waiting a certain number of hours is radically wrong, and as long as we find evidence of progress, even though it be slight, interference is absolutely contraindicated. Obstetrically, it should be our aim to permit Nature to accomplish her own progress.

Cases of contracted pelvis when the true conjugate is less than five and a half inches must obviously be excluded from this general principle, for in these cases a living child can be hoped for by Cæsarean section at term.

In discussing test of labor, the following factors should be considered: 1. Parity; 2, position of head; 3, consistence of head; 4, possibility of testing engagement externally; 5, character of pains; 6, condition of cervix; 7, fetal heart; 8, condition of mother.

Parity. Primiparæ should be given a more thorough test of labor.

Position of head. With the occiput in the posterior position, we are apt to give the patient a much longer period than when it is in the anterior position. Again, we should allow much more time to a patient with the head in the posterior parietal position than in the anterior parietal.

Consistence of head. Hardness of cranial bones should modify the duration of the test of labor, for moulding is less likely to occur. This condition is nearly always met with in overterm women, and early recognition may often prevent subsequent difficulties.

External attempts to force head into bony pelvis. Of no small importance is the ability with which one can force the head into the pelvis by suprapubic pressure. We can at once eliminate those cases in which the head, in spite of strong abdominal pressure, still floats free above the pelvic brim. On the other hand, where we are able even to slightly force the head in, we should be quite liberal in the test of labor, for many of these cases, if given time, eventually deliver spontaneously.

Degree of uterine contraction. With prolonged, strong, regular pains, we must always be careful in the time allowed a given case. Should there develop any signs of exhaustion, other methods should be seriously considered. The presence of high contraction rings calls for rapid interference. With a dilatable, but poorly dilated cervix in a patient who has had rather prolonged test of labor, morphine, in addition to giving a much needed rest, on account of its softening effect on the lower uterine segment, furthers dilatation.

Condition of cervix. Rigid undilatable cervices require a much longer period of dilatation.

Fetal heart. The fetal heart must always strongly influence the test of labor. Sudden slowing, or on

the other hand, rapid, feeble sounds demand rapid termination of labor.

Constitutional considerations. The presence of nephritis, tuberculosis, more especially cardiac disease, etc., permits only of very limited tests of labor, if of any. In the last mentioned condition, we may be considerably more liberal with our test of labor by the administration of scopolamine-morphine anesthesia. The patients are entirely relieved from physical strain, and go through labor without difficulty. We have had several such cases with most encouraging results. All of these cases did surprisingly well and convalescence was uneventful.

Let us now consider the question of high forceps. With the introduction of modern surgical procedures in obstetrics, the indications for their use have become more and more limited with a consequent decrease in infant mortality and maternal injury. When the problem is that of delivering a head through a smaller pelvis, the solution offered by the employment of high forceps is an absolutely unscientific one. It is dependent merely upon the physical strength necessary to pull by the obstruction with the tearing of soft parts, head, or breaking of blades of forceps, etc., depending upon which is the weakest member. It is brutal, inadequate, unscientific, and a confession of lack of complete obstetrical knowledge.

The cases in which high forceps may be used are in multiparæ: 1. When no disproportion exists; 2, in cases of slight disproportion, general traction may be employed which, if not successful, is then followed by pubiotomy or craniotomy. A small percentage of these cases may be successfully delivered by the high forceps.

In the majority of our cases of disproportion, however, we have discontinued the use of high forceps

of a bougie or large rectal catheter between the fetal membranes and the posterior uterine wall, always being careful to avoid rupture of membranes or kinking of catheter.

Cæsarean section. In cases of slight and moderate disproportion in which, after a limited test of labor, we find no engagement or moulding, and in which we need entertain no fear of infection because of ruptured membranes, repeated examinations, or applications of forceps, Cæsarean section is the operation of choice. In primiparæ coming under this group of cases, we are less likely to make an early decision in favor of Cæsarean section, for in the absence of a previous history to guide us, we are more anxious to see what Nature will do.

In emergency cases, where we have a slight or moderately contracted pelvis with a viable child, the cervix fully dilated, where repeated examinations or attempts at forceps have already been made, thus presupposing infection, we are in favor of performing pubiotomy. In fourteen cases we have had one still birth, no maternal death, and no serious complication.

The unquestioned indication for craniotomy is that of dead or dying fetus in a case of disproportion. Whether or not craniotomy should be performed on a viable child in the interest of the mother, is a much disputed question. We feel that the judgment of the obstetrician should not be the sole criterion. The wishes of the patient should be given weighty consideration. Some of the more important factors which aid us in advising our patients are age, previous history of labors, whether or not patient has any living children, and degree of disproportion.

Below we append a brief table of the statistics of the hospital for the last six years. The percentage of forceps has steadily declined, during the last two

TABLE I.—MATERNITY STATISTICS OF JEWISH MATERNITY HOSPITAL, 1909-1915.

Year.	Total No. cases.	Total forceps.	Per cent. forceps.	High forceps.	Stillbirths, high forceps.	Medium forceps.	Low forceps.	High forceps mortality.	Still births, low and medium forceps.	Mor- tality, low and medium.	Posterior and parietal positions.	In-ertia.	Other causes, eclampsia, etc.	
1909	285	37	13.3%	4	1	17	16	25%	4	12%	9	10	16	2
1910	956	61	6.3%	9	3	27	26	33.33%	3	5%	12	11	37	1
1911	980	70	7.1%	9	4	34	27	49%	4	6%	5	15	46	4
1912	1,150	59	5.1%	7	2	37	15	29%	2	3.5%	9	19	29	2
1913	1,159	45	3.9%	2	2	24	19	100%	0	0	8	12	22	3
1914	1,303	41	3.2%	1	1	24	16	100%	1	2.5%	9	13	17	2
1914 (Twilight)...	250	21	8.4%	0	0	6	15	0	0	0	0	4	14	3
Total	6,083	334	5.3%	32	13	179	134	40.6%	14	4.5%	52	84	181	17
		Twilight cases	8.4%											

in favor of induction of labor in cases in which we see early, and Cæsarean section is done or pubiotomy at term with living child, or craniotomy at term with dead child. Induction of labor is by far the most rational procedure in the treatment of contracted pelvis, offering, on the whole, most satisfactory results to both mother and child.

At the Jewish Maternity Hospital, we unfortunately have had only a small series of such cases, for, in spite of thorough ante partum examinations, we often cannot persuade our patients to return to the hospital at a definite date and we see them only when labor has actually set in. The thirty-fourth to thirty-sixth week is sufficiently late in pregnancy to insure the viability of the child, and yet early enough to preclude disproportion between presenting part and pelvis.

The method followed by us preferably is that advocated by Krause, and consists in the introduction

years especially so. The high forceps has practically disappeared, showing a marked decrease each succeeding year. The average time of full dilatation of the cervix before the application of the forceps was resorted to, was about four and one half hours, ranging from two to eight hours in individual cases.

We show another short table comparing the results of high forceps, pubiotomy, Cæsarean section, induction of labor, and craniotomy.

TABLE II.—STATISTICS OF ABNORMAL BIRTHS.

	Cases.	Stillbirths.	Mortality.
Craniotomy	13	13	100%
High forceps	32	13	40.6%
Induction of labor	20	2	10%
Pubiotomy	15	1	6.6%
Cæsarean section	63	4	6.3%
Medium and low forceps	313	14	4.5%

In conclusion, we wish to emphasize the following points:

1. The total percentage of forceps (5.5 per cent.) is a very low one. Our patients, as a rule, are not

pampered, and therefore there have been few "forceps of convenience." We ascribe this low percentage to the fact that our patients are given a very strenuous test of labor.

2. The high forceps has been practically eliminated as an operative procedure, thereby materially decreasing our infant mortality.

3. Cæsarean section and pubiotomy have proved admirable substitutes, and with more experience and improved technic are continually giving better results.

4. Pituitrin has proved of extreme value in cases of dystocia due to dry labor—posterior or parietal positions, etc., where no disproportion exists, as is so clearly shown in the statistics of the last two years compared with those of previous years.

5. In our series of "twilight" cases, small compared to the grand total, the use of forceps was markedly increased from 4.5 to nine per cent.

Finally, it has been our purpose in this paper to point out that in order to practise obstetrics scientifically, our cases must be individualized, so that proper treatment may be instituted to meet certain definite conditions. Furthermore, due consideration must be given to patients suffering from relative disproportion between fetal head and pelvis, and a proper test of labor permitted before interference is decided upon in order to conserve the best interests of both mother and child.

We wish to acknowledge our indebtedness for the courtesies extended to us by the attending surgeons at the hospital, in permitting us to use their material for our paper.

RECTAL POLYP IN CHILDHOOD.*

A Frequent Cause of Rectal Prolapse; Some Remarks on the Symptoms, Diagnosis, and Treatment.

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About three years ago, a child who had been twice operated upon for rectal prolapse came under my observation. Linear cauterization of the mucous membrane was first done and, the prolapse recurring soon after, some type of circular excision was carried out at the second operation. Nevertheless the prolapse recurred within six months, although to a less extent. Neither operation had any influence upon the frequent appearance of mucus and blood in the stools. The anemia from which the child suffered was very advanced when I saw her. Upon rectal examination, I found a polyp attached by a long pedicle to a point about three inches above the anus. Its removal resulted in permanent relief from the prolapse and the passage of blood and mucus with the stools, and the anemia gradually disappeared. This experience led me to investigate the relation between the occasionally encountered rectal polyp and the frequently observed prolapse in child-

hood: all instances of both conditions were studied with this in view.

Upon examination of the literature on the subject, it was found that the numerous monographs and textbooks on diseases of the rectum and anus either do not mention rectal polyp as a cause of prolapse in childhood or generally state it in the most casual way. Almost invariably one finds that a great number of etiological factors for rectal prolapse are given without any attempt at a critical analysis of their frequency and importance. As a typical example and because it is complete, I cite Fischl's (1) presentation of the causes of rectal prolapse in childhood:

Diarrhea with much tenesmus, especially in catarrhal colitis; constipation, which leads to a great increase of the abdominal pressure; hard fecal masses, the expulsion of which bulges the rectal mucous membrane forward; difficulty in micturition, which reacts upon the rectum; mechanical conditions of local nature, such as rectal polypi; inflammation of its mucosa; and, finally, severe paroxysms of coughing which lead to great pressure, particularly whooping cough. To these causes should be added the anatomical dispositions peculiar to childhood; namely, the narrowness of the infantile pelvis, its consistence, largely cartilaginous, the almost perpendicular course of the rectum, the greater play of its attachments with the neighboring organs, etc. Moreover, weak constitutions and chronic disorders of nutrition assist in the tendency, so that prolapse of the anus and rectum is present, for the most part, in anemic, badly nourished children.

As examples of exhaustive treatises upon diseases of the rectum that do not mention polyp as a cause of prolapse those of Samuel and Earle (2) and of Gant (3) may be cited. Many authors—Tuttle (4), Cooper and Edwards (5), etc.—list polyp among the causes of prolapse, in chapters on that subject, but do not suggest prolapse as one of the symptoms of polyp in the sections devoted to the latter topic. The symptoms of rectal polyp are not characteristic, according to other observers (Cooper and Edwards, for example), the only sign described being hemorrhage from the bowel during or immediately after defecation. A fourth group of writers, Quénu and Hartmann (6), dismiss the question of the relation between polyp and prolapse with the statement that parents often mistake a prolapsed polyp for a prolapse of the rectum. Finally, Goodsall and Miles (7) believe that "a pedunculated growth of the rectum, when of sufficient size and length to come within grip of the sphincters, may so drag upon the mucous membrane during expulsive efforts that it may be wholly protruded with a partial or complete ring of mucous membrane."

Briefly then, some authors mention polyp as a cause of prolapse in children, others do not describe any relation between the two conditions, a third group believe the association to be a mistaken one, and, lastly, two observers state that polyps may cause rectal prolapse when they protrude from the anus. It is hoped that the following observations will aid in adjusting widely differing viewpoints of two affections of considerable although rarely serious practical importance.

Excluding the frequently observed transient prolapse of infancy, thirty-three instances of rectal prolapse in children have been observed in the past three years. The diagnosis was based upon actual observation of the prolapse, not upon the history given by parents. In ten cases a rectal polyp was found.

*The larger part of the material upon which this paper is based is derived from the surgical department of the Mt. Sinai Hospital Dispensary. One case was operated in at the Har Moriah Hospital, service of Dr. A. V. Moschowitz.

It should be stated at once that the coexistence of rectal polyp and prolapse is probably not as frequent as these figures indicate, for only when a polyp was either felt or suspected were a number of the cases of prolapse referred from two of the pediatric departments of the Mt. Sinai Hospital Dispensary.¹ The polyp was removed in eight of the ten cases. Of these six could be traced; all have been cured of prolapse by excision of the polyp. It should be noted that in not a single instance could the polyp be drawn out beyond the anus either at the examination or when the patients were operated upon. I have seen three cases in which polyps protruded from the anus, but rectal prolapse (beyond the anus) was not present in any of them.

The histories given by all but one of the cases of polyp complicated by prolapse were quite uniform—the passage of blood and mucus in the stool, occasional bleeding immediately after defecation, and prolapse of mucous membrane during or after defecation or enema. The exceptional instance was that of a boy four years old, who had had prolapse accompanying bowel movements for about two years. Forcible reduction by the mother was occasionally necessary. There never was any blood or mucus in the stool. Treatment had consisted in strapping of the buttocks. Upon examination, August 6, 1913, in the surgical clinic of the Mt. Sinai Hospital Dispensary a polyp was found attached high up on the lateral wall of the rectum. It was unusually firm and fibrous in consistence. Its removal was followed by permanent cure of the prolapse. The prolapse disappeared at a varying period after bowel movements; in none of the patients was it permanently beyond the anus; the length varied from one to three inches.

In contrast to the symptoms of rectal polyp complicated by prolapse, are the symptoms of prolapse not associated with polypi. None of the patients in the latter group of twenty-three cases gave a history or presented evidence of blood and mucus in the stools, with two exceptions. These were patients suffering from persistent diarrhea, and an enterocolitis of tuberculous origin (positive von Pirquet test in one of them) was suspected in both instances.

Several experiences have demonstrated that rectal polypi can be and are very readily overlooked; a most thorough local examination of every suspected case cannot be too strongly urged. Therefore a description of the technic of rectal examination when routine palpation does not disclose a polyp, may be permitted. Proctoscopy with the ordinary speculum has not been of any great value in my hands. Of six cases of polyp in which it was employed the lesion could be seen in only two. In none did rectal inspection reveal a polyp that could not be felt. My impression is that the chief value of proctoscopy for rectal polyp in children lies in determining the condition of the mucous membrane in the neighborhood of the lesion. Returning to the question of rectal palpation, I wish to repeat that the routine examination often will fail to discover a polyp. A method of palpation of considerable

value, first described by Mollière (8), has disclosed the lesion in several of the patients in my series. The examining finger is introduced to the highest possible level, and, slightly flexed, should be swept toward the anus along the rectal walls. In this manner the pedicle of a polyp often can be hooked and the tumor thereby found. When Mollière's method is unsuccessful an enema should be administered and the rectum palpated immediately thereafter. This procedure brought the polyp within reach of the finger in one of my cases. Should these methods fail it appears logical to palpate the rectum when filled with water; polypi not demonstrable otherwise may thereby be floated free and felt. When indicated this procedure will be tried in future cases.

Since the treatment of polypi consists simply in their removal, it would appear superfluous to add any remarks upon the little operation, were it not complicated occasionally by hemorrhage. The polyp should be neither twisted nor torn off. Troublesome arterial bleeding following these procedures has been described, and it may be no easy matter to clamp and tie a bleeding pedicle situated some distance from the anus. Although most authors reserve ligation for polyps of large size, surely it is much safer, in all instances, to ligate the pedicle of a polyp by a suture passed through its base. The bowels should be confined for two or three days. Finally, mention should be made of rare cases of rectal polyp in which the lesion is attached high up and the base of the pedicle is broader than usual. It has been found that a fold of peritoneum may be included in such a pedicle. Careful ligation must therefore be practised and the precaution taken to leave sufficient pedicle to avoid slipping, in all doubtful cases.

SUMMARY.

The question of the relation of rectal polyp to rectal prolapse in children has received very scant attention; widely divergent opinions are held by different observers. Rectal polypi were found in ten of thirty-three cases of prolapse; this does not include the transient prolapse of infancy. The removal of the polyp resulted in permanent cure of the prolapses. Visible prolapse does not result (in the three cases seen) when polypi protrude from the anus.

Rectal prolapse associated with blood and mucus in the stool indicates a rectal polyp almost invariably; prolapse without blood and mucus in the stool negates a rectal polyp almost invariably. Rectal polypi are readily overlooked; special methods of examination for their detection are therefore described. A rectal polyp should not be removed by avulsion, but invariably by ligation through the base of its pedicle.

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¹The clinics of Dr. J. S. Leopold and Dr. M. H. Bass. I am greatly indebted to both for their courtesy in referring the cases in question.

ONE THOUSAND SUBMUCOUS RESECTIONS OF THE NASAL SEPTUM.*

What I Have Learned in Performing Them.

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It seems as though I ought to apologize for a paper, the subject matter of which is the hackneyed submucous resection of the nasal septum. Being fully aware that I can add nothing to the many essays on the subject, I will not attempt the impossible, but instead will simply confine myself to my own personal experience with this operation, speaking only of those features which appear to me as being important and generally interesting.

The first consideration that naturally presents itself is the careful study of the indications for the operation. Broadly speaking, a deviation of the septum *per se* is no more an indication for operative intervention than is the presence of a good healthy faucial tonsil or a vermiform appendix. The key to the solution must be worked out from a sound and reasonable conception of the pathological processes leading up to and underlying the symptomatology of the case, as revealed by a careful study of the history, the patient's nares and accessory sinuses—the whole tempered by exact knowledge based on experience as to what this operation can or cannot accomplish. The grade of the deviation is not necessarily in direct proportion to the amount of trouble it is likely to engender. A comparatively small deviation high up in the region of the middle turbinate will, as a rule, produce more symptoms than a larger deviation low down in the inferior meatus, while some very marked deviations produce no symptoms whatsoever.

It is needless to dwell long on cases where the nasal septum, crooked and kinked, full of spurs, and generally grotesquely irregular, actually occludes one or the other nostril. The submucous resection, skillfully and judiciously performed, works miracles for those patients in a way that no other operation could possibly do. There is that other larger class of cases, however, with more or less moderate septal deflections, where the indications are not at all clear cut, and where judgment cannot be pronounced without a good deal of careful thought and investigation. In those cases the important questions to answer are two:

1. Can we improve the patient at all with this operation?

2. Are the benefits to be derived worthy of the sacrifices that have to be made?

In order to answer the first question, namely, Can we improve the patient? it is absolutely essential to make certain that the deflection in question is in a way responsible for the train of symptoms for the relief of which the patient consults the rhinologist. That train of symptoms might be intermittent blocking of either or both nares, or hawking and spitting with a postnasal discharge, or frequent colds, or sense of fullness in the head, tinnitus, or deafness of the catarrhal type, pressure headaches,

asthma, attacks of neuralgia, etc. The role the septum plays at the time of examination need not necessarily be as the direct or sole offender—it might simply have been the prime instigator of the mischief, and as such it deserves attention. Thus the patient might be found to have a purulent discharge from his nares, which, of course, could not have come from the septum itself, but might be secondary to the obstruction causing improper drainage from one or more of the accessory sinuses.

Nature delights in asymmetry and no two nasal chambers in the same individual are just alike, the asymmetry being contributed in no small part by varying degrees of deviations of the septum. That normal states of health exist in spite of those deviations, must depend on the peculiar structure of the turbinated bones. Being spongy and elastic, they accommodate themselves to the given space and offer a surface just large enough to the passing air current as the case might require. When the septum is deviated, however, sufficiently to interfere with the proper function of the turbinates, or when the surface of the septum, in addition to the deviation, presents one or more spurs, which by impingement continually irritate these spongy bodies, more or less constant swelling of the mucous membranes results with accompanying occlusion of the ostia of the sinuses—in a word, the beginning of that vicious cycle of first imperfect ventilation of the accessory spaces, then imperfect drainage of the contents, excessive mucus or pus formation, frequent colds, etc., each with its own train of symptoms and sequelæ.

This accessory sinus sequence of events is not, however, the only one possible. Frequently simple pressure of the septum against the middle turbinate will be productive of either constant or periodical attacks of excruciating headache. We all know cases where the simple shrinking of the middle turbinate with cocaine will instantly relieve a bad headache, and I know several cases of intermittent violent facial neuralgia, one case in particular, that of a friend of mine, a physician, where the attack was severe enough to incapacitate him for several days at a stretch, being relieved by submucous resection of the septum. In his case, there was no sinus disease—it was simply pressure. I had one case of facial tic, where every other form of treatment having failed, that portion of his septum which was pressing against his middle turbinate, was resected, with relief to date, after one year and a half.

That a number of such cases would in all probability be benefited by surgical treatment of the turbinates is very likely, but it must be borne in mind that in those cases the turbinate hypertrophy or degeneration is most probably produced by the continual irritation to which they were subjected by a twisted septum, and that any treatment directed to the turbinates, although absolutely essential, and to be carried out in every case, is only of a palliative nature and not at all directed to the primary source of the trouble.

Having studied then the case with these points in view and after having attempted to establish the normal relations by means of general and local medicinal means, only to see them either fail entirely or undergo only temporary improvement, we are justi-

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fied in concluding that a correction of the septum will improve the condition. This, of course, must be taken with the proper amount of reserve. Given, let us say, a case with marked purulent sinusitis with perhaps a threatening involvement of neighboring vital organs, that was originally started because of a septal deviation interfering with drainage, yet we should no more think of directing our attention at that time to the deviation, than we should go fishing for a diseased tonsil in a bad case of quinsy—other more direct measures are, of course, indicated, which, if successfully carried out, might do away with or counteract the disadvantages of the septal deformity, and the latter might be no longer required, but barring such instances, the operation is usually indicated in this class of cases, subject, however, to the answer of the second question, namely, Are the benefits to be derived worthy of the sacrifices that have to be made?

To answer this, the following points must be considered: 1. Are we destroying or hopelessly crippling any useful organ? 2. What is the gravity of the operation? 3. What complications may be encountered or should be expected?

The septum undoubtedly performs a very important function during the early or developmental life of the individual, by acting as a sort of projection force around which the neighboring parts grow, and the removal of any portion of it during that period of life should be undertaken only as a matter of last resort. Not so, however, with the full grown adult. With him the mucous membrane covering the septum is probably the most important functionally, while as a supporting structure, the bony portion of it beginning under the nasal bone and running posteriorly may be totally disregarded. The cartilaginous portion, however, does help to support the nose, and for that reason should never be removed *in toto*—in a word, the submucous operation conserves the most necessary structures, that is, the gland carrying and blood containing mucous membrane, and sacrifices only portions which are comparatively of lesser importance.

When speaking of the gravity of the operation, it is well to remember that deaths have been reported now and then, and that some few fatal results have occurred in this very city. I cannot comment on any of the fatalities, not having had the opportunity of studying any of those cases. All I can say, and wish to do, is to cite my own experiences. Out of one thousand operations, there was not a single death, and in only one instance was the patient sufficiently ill to be the cause of any considerable anxiety, and in that case the circumstance might be attributed to the aftertreatment the patient received at the hands of one unfamiliar with the case and this work generally, because of my absence from the city.

As to complications, the following were encountered:

1. Perforations of the septum—none.
2. Acute ethmoiditis—one.
3. Sinking of the bridge of the nose below the nasal bones—one.
4. Acute infections of the middle ear—four.
5. Infections between the flaps—five per cent.

A further analysis of these complications shows the following: The patient who developed acute ethmoiditis got well after a week's stay in bed. The one with the sunken nasal bridge had a paraffin injection made into the depression a year after the operation with satisfactory correction of the deformity. Two of the four middle ear infections cleared up in a week, the other two developed purulent otitis media with mastoiditis following, and got well after the mastoid operation was performed on them. On the infections between the flaps, I should like to dwell a little longer, because that complication was encountered quite frequently—five in every hundred, as we observe. Although not a serious complication, yet it is very annoying. It usually shows itself on the third or fourth day after operation, and if promptly recognized readily yields to treatment, which treatment consists in making an incision at the lowermost point of the collection, evacuating the contents, and the insertion for several days of a small bit of rubber dam or gauze between the edges of the incision to prevent them from agglutinating. The nares are cleansed every day, the contents of the sac squeezed out by gentle pressure on both sides with a cotton tipped applicator, and the piece of rubber dam or gauze replaced. All those cases heal completely within ten days without interfering in any way with the ultimate result of the operation. These infections occur in spite of all care. They have occurred in cases, where being more anxious for some reason, the operation was performed at a hospital, under the strictest possible aseptic precautions, while on the other hand, some cases reeking with pus at the time of operation, healed without any trace of infection.

As we said before, these infections are more a matter of annoyance than risk, unless they remain unrecognized and neglected. The pus is confined in a cavity completely lined by perichondrium—a non-absorptive membrane—and cannot very well extend above, as it would have to be under very considerable pressure to dissect the flaps from the cartilage, and before any such dissection could occur, the original incision anteriorly would be more likely to give way, or the pressure relieved by the surgeon recognizing the trouble and providing the necessary drainage. One thing may occur as a sequence of such an infection, and should be carefully watched for, and that is, a degeneration of the strip of cartilage left above for support, with a resulting dropping of the nose at the nasal bones. This occurred in the case referred to, where the infection was not recognized early enough and was allowed to work some mischief before it was properly treated.

A careful study of the complications shows only one class that is really dangerous—I refer to the ear complications. Two patients of this class developed mastoiditis, and had to be operated upon. If we remember, however, that they were only two out of a thousand operations, and that the mortality of the mastoid operation itself is not very high, and that furthermore all those operations were done without any particular choice of cases, we can safely assume that the patient who has his nasal septum resected is not subjecting himself to any special risk.

Another point of considerable importance, particularly from the patient's point of view, is the pain

and discomfort and the length of the disability that usually accompany this operation—there is remarkably little, when we consider the apparent magnitude of the procedure. A number of patients were seen who had not the slightest pain or discomfort at any time, and whose usual routine of life was not in the least interfered with. One such case in particular—F. L., a young girl of twenty years, left my office after the operation, and went shopping. She did the same the following morning, stopped at my office during the course of the morning to have the packing removed from her nose, and continued about her business. Several days later she was discharged as healing was complete, and there was nothing more to be done for her. This history is exceptional, and is merely cited as an example of how little disturbance it can produce in rare cases, and we do not wish it understood that we advise the patient to take it as lightly as this. As a rule, we can promise the patients that if the operation is performed, let us say on a Saturday morning, they will be about and attending to their business on Monday. With very few exceptions, that promise can be kept. There should be absolutely no pain during the operation, and to overcome the throbbing and beating that comes on as the influence of the cocaine wears off, the patient is given a hypodermic injection of one quarter grain of morphine with one hundred and fiftieth of atropine about three hours after the operation. With this plan the darting and stabbing pains arising because of the evanescent cocaine are met and soothed by the gradually increasing influence of the opiate, and the dreaded period of lancinating, throbbing pain is made comparatively comfortable. The presence of the packing in both nostrils is not a thing of joy or pleasure, to be sure, but if the nasal chambers are not packed too tightly, most patients do not mind it a great deal.

How to *do* a submucous resection cannot be well told in words. The technic of any operation is largely a matter of individual choice and adaptability to solve a given problem, and in this operation more so than in any other no rules can be laid down. The problem is to remove all of the deviated bone or cartilage with as little injury to the mucous membrane as possible, as well as minimum shock to the patient. And every surgeon undoubtedly solves it in a way which happens to suit his own particular dexterity.

Whatever remarks I make about the technic of the operation must be prefaced by expressions of appreciation and gratitude on my part to Dr. Arthur Watson, through whose kindness I was able to learn what little I know. Having started to do this operation in my own crude way in the beginning, I was fortunate enough to enlist his interest in my efforts, and it would certainly have been solely because of my stupidity had I failed to learn many refinements at the hands of such a master, and the few points to which I intend to call attention are simply a recital of how I eventually succeeded in solving some of the technical difficulties with which this operation abounds, being fully aware that there are many other ways to overcome them, just as good or even better.

As a general thing, an attempt ought to be made so to simplify the technic of an operation that it can be performed with as few instruments as possible,

and also as quickly as possible—this latter being just as true where the operation is undertaken under a local anesthetic, as it would when done under general anesthesia—in fact, in some few cases, even more important. A number of patients will go off into a faint as soon as the operation is begun—a purely psychic breakdown from which they rally and recover very promptly. The great majority of patients stand it very well, provided that their endurance is not taxed too severely, and I have seen a number of cases where an additional few minutes made up the difference between a smooth uneventful operation and one punctuated now and then by a fainting spell—a thing extremely annoying and to be avoided if possible.

There are a few things that live in my memory with greater vividness than that sense of a sinking heart and utter helplessness when I saw for the first time a complete submucous set by Freer. That formidable array of instruments was enough to strike terror into the heart of any beginner. It soon became evident that most of them were not at all essential, and that some instead of being helpful were very much of the same nature as the Staaake protector for the facial nerve in the radical mastoid operation. Instead of preventing trouble, they were frequently a prolific source of it. I found that as I learned more and more about the operation, more and more instruments could be discarded until now five or six are about all that are essential. Thus, for instance, I found myself frequently considerably hampered by the septal speculum for holding the two mucomembranous flaps apart, so they were discarded altogether, and I discovered that without any such speculum the work could be done with greater ease and speed. The Ballenger swivel knife likewise went to the heap of curios in my instrument case, and so with the right and left bone cutting forceps, right and left angle knives, and what not.

The instruments used at present are:

1. A Watson nasal wire speculum.
2. Round bladed Freer knife.
3. One double ended Freer elevator.
4. Brünning and Middleton bone forceps.
5. Small square chisel.
6. Angular forceps.

Before speaking about the operation itself, I wish to say a few words about anesthesia. In order to do a successful submucous resection, it is of the utmost importance to obtain not only perfect analgesia, but also perfect hemostasis. It is absolutely impossible to do a good operation in a bloody field. Pain is much more easily overcome than hemorrhage, and on this point, viz., the preparation of the operative field, a trial of the different methods employed and advocated led me to the positive conclusion that the method about to be described is by far superior.

The use of a general anesthetic as a routine deserves no other remark than to say in passing that it is absurd. It should be employed in children and very, very rarely in adults. Of the different methods of local anesthesia—that of injection into the tissues with a hypodermic needle, or the use of the so called cocaine mud, they work well in some cases, but not in all—as a rule there is too much bleeding. The method I have been in the habit of employing is not original with me, and was demonstrated to me by

Doctor Watson. In a few words, it is this: Both sides of the nasal septum are completely covered by thin pledgets of cotton of a tissue paper thickness saturated with a solution of cocaine crystals in adrenaline chloride one to one thousand—six grains of the cocaine to the fluid dram of the adrenaline. This does not mean that both nares are packed with cotton saturated with this ten per cent. solution of cocaine. The drug should never come in contact with any portion of the turbinates, or the outer nasal wall—it is the septum only that is covered, and every bit of it that is likely to be invaded during the operation must be plastered with these thin pledgets. In this way there is very little absorption of the drug into the circulation, and the anesthesia and hemostasis are so perfect that many operations were performed without the use of a single sponge. It requires a little practice to apply them neatly over a crooked and distorted septum, but after one has done it several times it becomes quite simple, and should not take more than five minutes. There is very little waiting to be done with this method. Frequently by the time the second surface of the septum is covered, the side covered first is ready for operation. A wait of five minutes is more than sufficient. No toxic results were ever seen to follow this method, even where the cotton was allowed to remain in the nostrils as long as a half hour, as when operations undertaken in the dispensary would sometimes meet with some sort of an interruption.

With the field prepared then, the operation is begun by making a vertical incision far enough forward to be anterior to the deflection, but never so far forward as to be in the skin or even at the mucocutaneous junction. If that is disregarded, bleeding is bound to be free, as skin is not absorptive, and we should be operating in a field unaffected by the anesthetic solution.

The incision is vertical in a straight line and should go clear to the floor of the nares, unless the resection is going to be limited to a small hump or spur. In the average case, it is better to carry the incision well across the floor, as this permits freer manipulation, and tends to prevent tearing of the flap. With the little finger in the opposite nostril, there is practically no danger of the incision going too deep, as the finger affords a good sensitive bulwark of resistance against the pressure exerted by the instruments. It is always important to make sure that the perichondrium is incised before the separation is begun, and that is easily accomplished if the sharp end of the elevator is held almost perpendicularly to the septum, and with a good firm grasp on the instrument the membrane is pushed back for about one eighth of an inch. If that brings to view a perfectly smooth, glairy, and white surface, then it is safe to proceed with the dissection which is usually easy if the elevator is held parallel to the septal surface. If a rough spot is encountered, it is best not to persist there, but try another higher or lower level, so that the original rough area is past, and then by bringing the dissection forward a bit in the original level, the difficulty is overcome. If that precaution is neglected, and one persists in pushing and scraping over such a rough area, the result will usually be a perforation through the cartilage into the other nostril.

After the first flap is dissected as far as is desirable or possible, the cartilage is nicked in the original line of incision with the sharp end of the elevator. The little finger in the opposite nostril is again the safest guide. The elevator is pressed against the cartilage until it is felt to sink a little way into the cartilaginous substance, at which time the sensitive finger tip on the opposite side will feel a little circumscribed point of pressure against it. The duller end of the elevator is then introduced into this nick, and with the light in the other nostril, we can watch the elevator pushing the cartilage away from the intact membranous flap. Here, again, it is absolutely essential that the operator feel the elevator in contact with the cartilage or bone at all times. When the end is lost in space, it usually means a tear through the membrane. The incision in the cartilage is enlarged in both directions by pushing the elevator in a straight line upward and downward as far as need be.

With the dissection complete on both sides, it is a simple matter to remove the cartilage and bone with the forceps—the swivel knife being more of an encumbrance than an aid. As a rule it is a safer practice to secure one flap, preferably the one on the concave side, intact, before proceeding very far with the operation—especially is this applicable to cases with the deflections near the floor. In those cases it is risky to attempt to carry the dissection from above down clear to the floor anteriorly, for the reason that the tough periosteal fibres, which curve over the crest of the superior maxilla, blend with the septal mucous membrane, and the elevator is more likely to perforate the soft nonresistant membrane before it will sever those tough arching fibres. To get around this difficulty, we may employ one of two methods. If it is the concave side we are attempting to separate, we can take advantage of the fact that those arching periosteal fibres are either very thin or absent altogether far back along the septum. It is at such a point then that the dissection can easily be carried all the way down to the floor, after which by keeping the elevator at this low level and hugging the bone closely all the time, we can safely work forward, cutting those fibres as we advance—in a word, the lowermost point of the dissector must in this manoeuvre be at all times on a level lower than that of the mucoperiosteal junction.

If we wish to work from before backward, and on the convex surface of the septum, we can proceed in this manner: The mucous membrane with the *periosteum* is elevated from the floor of the nose, and as the dissector moves up always in contact with the bone, it strikes the overhead arching periosteal fibres and severs them—the mucomembranous flap not being in the least in danger. Dissection around sharp spurs *in situ* is practically impossible. They are denuded by getting the elevator a short distance under them, and then fracturing them over to the opposite concave side, after which the separation is quite easy.

For the removal of heavy ridges of bone, or of the maxillary crest, the dissection of one flap is sufficient, after which a small square chisel is used for undermining the anterior edge, when a few taps with the mallet will permit the prying up of the bony fragment with comparative ease, after which it can

be rolled up, separated from the other flap, and removed.

In my early operations I was struck with the fact that in cases where the flaps were accidentally buttonholed, healing was much quicker and kinder, so that now as a routine, an incision is made low down through one of the flaps where such has not already been made inadvertently. It is well to be careful to remove all portions of denuded cartilage, as the blood supply of this structure is rather poor, and, as a corollary, it follows that it is not wise to denude more than the case absolutely requires. Care should also be taken not to drop or leave between the flaps any fragments of bone or cartilage or strands of cotton used in sponging.

Of the different forms of packing, if any is to be used at all, the strips of gauze bandage impregnated with bismuth subnitrate powder folded over on itself, four or six thicknesses as the size of the nose might require, as suggested by Doctor Watson, are probably the best. The strips are put into both nostrils, one over the other, carefully and gently, care being taken not to crumple up the free membranous flap. The packing should be light, and after it is all in, the anterior free edge of the flap is found and gently pulled upon, to make sure that it has not doubled on itself—no stitches being necessary.

This operation is an office operation—all of my cases with very few exceptions being done either in the office or in the dispensary of the Mount Sinai Hospital, and without the aid of assistants. The patient sits up in an ordinary chair with a high back, and as a rule stands it well, especially if the operation is done quickly. The average case can be done within ten minutes of actual operating; more difficult cases might take as long as twenty minutes. Of this series, fully one half required no more than ten minutes. After the operation the patient walks home, and is advised to lie down, if he feels like doing so. He reports the following morning for the removal of the packing, and in a few days, barring complications, healing is complete.

SUMMARY.

1. The submucous operation, having but very slight risks, is indicated in all cases where the removal of displaced or hypertrophied septal bone and cartilage will restore the proper functions of the nasal chambers and their contents: such as cases where there is actual mechanical blocking, or where there is interference with ventilation and drainage of the sinuses, or where pressure on the turbinates produces headaches and other reflex phenomena. It is indicated in cases of deafness and ear suppurations, where nasopharyngeal trouble traceable to the septal deformity is contributing to such deafness or suppurations.

2. The submucous resection is not a panacea for all ailments of the nose and nasopharynx, and before doing one, it is well to bear in mind its limitations, especially as far as reducing the deformity is concerned, in spite of extensive removal of bone and cartilage, for instance, in a case where the deflection occurs in such a high position that it is not safe to extend the resection so far; in which case it must first be determined whether the removal of that

which is possible, will give a satisfactory result.

3. The operation is absolutely contraindicated in all cases that show presence of atrophy, and should not be done in children except as a matter of last resort.

4. In cases of marked hypertrophy, with or without a deviation, it is well to try a Wassermann reaction before operating.

5. To get a good result, care must be taken to remove every bit of the deviation, going to the very floor of the nares if necessary, but not so with the upper end of the triangular cartilage, where a sufficiently large strip must be left for support.

6. The submucous operation is an office operation, and can be performed readily and safely without particular preparation of the patient.

7. Most of the regrets in the cases operated in, come from not having removed enough bone, rather than from having removed too much; more particularly is this true of the bony ridges along the floor.

8. A good submucous resection might not produce the desired results because of failure to reduce a hypertrophied inferior turbinate previous to the operation.

9. In acquiring the technic of the operation, it is well to learn to rely on the sense of touch as much as, if not more than on the sense of sight.

10. Packing, if employed, should be loose and carefully applied, and when once removed need never be replaced.

11. Persistent bleeding after the removal of packing usually indicates infection, and the case should be so regarded and treated.

12. Serious injury to any vital parts during operation is extremely unlikely, unless extraordinary violence is employed, and whatever disappointments do arise are usually the result of excessive timidity on the part of the surgeon.

1017 SPRUCE STREET.

THE MILITARY SURGEON ON THE FIRING LINE.

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The medical personnel of organizations must remain with them when advancing into action and during the whole course of an engagement. Accordingly the wounded will be treated where their wounds are received and the sanitary personnel will pause, if the organization is moving, only so long as is necessary to give appropriate first aid. At a later stage of the combat, when the movement of the organization permits and when justified by the number of wounded, a regiment aid station is established and operated. *Field Service Regulations, United States Army.*

The foregoing paragraph very clearly outlines the duty of the surgeon when the command comes under fire. First, let it be clearly understood that the surgeon is a military officer and his first thought and best effort must be to do every thing within his power to help win the battle that is being fought. All effort to relieve suffering humanity is of secondary importance to the one main object, victory. Having this in mind, the surgeon will attend the wounded with the greatest skill and care, and in such a way that he will be of the greatest value to

his commanding officer in helping to win the fight.

The rapid disposal of the wounded by sending them to the rear when possible, so that the command will not be impeded, is second in importance to attending the wounded on the battlefield. A large number of wounded men are apt to have a discouraging effect upon their comrades. It is all important that as many of the wounded as possible be returned to duty, for this is frequently an essential factor in winning a battle. Every commander is dependent on full companies to win battles.

A high degree of discipline is essential to success in this, the most important duty that the medical officer is assigned to in time of war. Discipline, organization, and efficiency are inseparable in military duty. The special military-medical functions are dependent on good organization; they consist in the rapid application of first aid and the return of the individuals to the fighting as quickly as possible. No ambulances can be used upon the firing line, in fact, rarely can litter bearers be used. The wounded man is treated where he falls. The soldier in all modern armies has a first aid dressing attached to his uniform, that is applied upon the field.

We must not forget that the ultimate well being of the wounded is the end to which the medical tactics are the means, and it is essential to keep constantly in mind the vital importance of sound judgment and thoroughness in the initial surgical treatment of the wounded. A secure, protective dressing and careful immobilization of fractures will almost eliminate amputations. Great care is always taken to remove or cut as little of the clothing as possible to avoid exposing the wound to infection, frostbite, sunburn, or insects.

The public and medical profession of our own country are not familiar with the change that has taken place in the duties of the medical service since our great Civil War. Modern firearms have extended the fire zone from a few hundred yards to a distance of eight or ten miles. Infantry fire in the Civil War was not effective at more than 200 yards; now it is effective at 2,500 yards, revolutionizing the work of the surgeon in an engagement. It is impossible to transport wounded men beyond the range of fire. You will use whatever cover and protection are offered in the trenches or any natural cover that the field offers. The ability to command is very important; hospital corps men, like other soldiers, must have implicit confidence in their officers to do their best work. The surgeon must expose himself to the enemy's fire if it is necessary to relieve the wounded. His greatest value to the army is the rapidity with which he can get wounded men back into action, helping to the full extent to win the battle.

I would like to say a few words regarding war. War is of value for the great leveling influence that it has upon men. The peasant and the prince will learn the best of each other and appreciate knowing each other when they have been comrades in war. The bond of friendship and mutual confidence is deeper and more sincere between soldiers who have been to war and have faced the enemy's fire than any friendship or brotherhood that has ever existed. It brings about a friendship that is valued almost as much as life itself. Therefore, in my opinion,

war is of some value. It breaks down classes, destroys the bigotry of creeds. There are no creeds on the firing line.

Why do men go to war? Because war today, as it has done from the earliest history, produces the greatest and grandest emotion that the human being can feel. No other emotion stirs the souls of men as does the thought of war. And so long as this overwhelming emotion is felt by human beings, just so long will men continue to go to war. The enthusiasm, ay delirium, that a declaration of war produces, is so far beyond the emotion that any other condition can produce, as to be a guarantee that, notwithstanding peace commissions, war will come in the future as it has in the past.

The plea that has gone forth for many years throughout the world that a great military force, a powerful army and navy, was the best guarantee for peace; the present conflict in Europe shows this is a fallacy. It has proved beyond the possibility of contradiction that the greater preparation for war in time of peace, the greater will be the slaughter when the war that is inevitable does come.

How shall we prevent war in the future? Certainly not by great armies, great navies, or compulsory military training. Education, and if you please, religious training, is apparently the only remedy that will guarantee us universal peace.

Let me draw attention to the depth of this feeling produced by the present war in Europe upon our own American women. Many thousands of our women are so stricken with this war emotion that they are working, working, working, making bandages, clothing, nightingales, pajamas, bloomers, etc. My experience in war is that ninety-five per cent. of all this work and material is entirely wasted, an absurd and useless waste of time and money. Soldiers and soldiers' families, I am proud to say, refuse, the world over, to be paupers and charity spongers. If you wish to help the civilians impoverished by war, give money to the Red Cross and it will be wisely and economically used.

The results of war are many. Plague, poverty, distress, and every possible form of human suffering upon one hand; upon the other hand there are some benefits. Look at the result of the present war. A unified England with all her subjects loyal unto death. France with her royalists and republicans united; Russia with her anarchists and law breakers of a few months ago clamoring to fight for the czar; Germany with her socialists and anti-royalists fighting shoulder to shoulder with the royal family. These are a few of the results that war brings about that we can well ponder over. We have all read of the rulers of these great nations fervently calling upon Almighty God to help them destroy and slaughter the enemy. King, emperor, and czar have all implored superhuman aid to help in the slaughter. Apparently all of their prayers have been heard. Again in war, death is not feared. The war emotion or fever, as it is called, is so great that men die willingly when at war. We all know that to die for one's country is to die a glorious death.

No major surgery can be attempted on the firing line. It is impossible, a senseless civilian dream. No probing, drainage, or packing is possible. Sol-

diers are young healthy men. Experience has taught us that conservative rather than radical surgery gives the best results in the field. You must wait until the army advances, retreats, or there is a lull in the fighting. The greatest number of men are wounded and require first aid from infantry fire and the least number from the bayonet. The proportion killed in bayonet contact is larger than from either artillery or infantry fire. A soldier will fight with the bayonet as long as he can stand upon his feet or use his hands.

Humanitarians will tell you the chief functions of the medical service in war consist in attending the wounded on the battlefield and the sick in hospital. Sanitarians will consider that prevention of disease in the field is the chief function. Both are absolutely essential; but the commander who is dependent on big battalions to win battles will expect, beside these mainly medical functions, the discharge of two others, the removal of the seriously wounded and immediate return to duty of as many men as possible.

Duty upon the firing line requires the medical officer to be active and alert, quick of perception, to stand fatigue and exposure, and to do a maximum amount of work with the least possible assistance.

An army requires renewal of about eighty per cent. of its strength in the course of a year's campaigning. The seriously wounded cannot help win the battle that is in progress, and every effort and sacrifice must be made to achieve victory. We all remember what General Sherman said about war. The seriously wounded cannot receive attention while the fight continues. I want to emphasize this point, and also the important fact that no civilian surgeons are permitted to come within the fire zone. There is much information that I could give you upon the valuable aid that the civil organizations render, but it is not and never will be upon the field of battle. Trained military men of the medical and hospital corps only are needed upon the firing line.

The medical corps in the time of war wear the usual brassard upon the left arm. The newspapers in reporting the present war in Europe make the mistake of referring to the medical officers as "Red Cross surgeons." They are not Red Cross surgeons, for the latter are never, in this day and age, permitted to come within the fire zone. This rule is general with all armies.

The casualty list of medical officers in modern warfare is very heavy and equal to that of officers of the line and higher than that of any other staff corps. The medical officer is exposed to the enemy's fire in the performance of his duty; in fact, all officers are. An officer cannot retain command of his men and intelligently direct their efforts, neither can he retain their respect and confidence, if he is stretched out upon the ground. There is nothing heroic or inspiring in an officer who is hugging mother earth; he must remain in an upright position, notwithstanding the many criticisms to the contrary, one eminent authority even saying, "it was grand, but not war." I am convinced that it is necessary and the plain duty of every officer. This opinion is the result of my personal experience upon a number of battlefields and duty with troops

under fire upon four continents. As I look back from the safety and comfort of civil life, I can see no reason to change my opinion. Better a thousand times to die a soldier's death than to live with a suspicion of cowardice hanging over you.

In our Civil War thirteen per cent. of the wounded died; in the Franco-Prussian war, eleven per cent. In our army in the Philippines 8.1 per cent. died. In the Russian-Japanese war the rate was 6.8 per cent. for the Japanese and 3.2 per cent. for the Russians. I hope we shall soon begin to receive statistics for the present war in Europe. It will be interesting to note if the decrease in the death rate of the wounded has continued; for the foregoing statistics show the consistent progress in military surgery during the past fifty years.

32 NORTH STATE STREET.

CASE OF INFANTILE FACIAL ECZEMA CURED BY REDUCTION OF CARBO- HYDRATES.

BY CHARLES N. STURTEVANT, M. D.,
Philadelphia.

CASE. A. C., female infant, aged five months, admitted to St. Christopher's Hospital for Children, Philadelphia, in August, 1914, with a history of apparently having frequent attacks of intestinal colic, of marked irritability, with diarrhea and an obstinate facial eczema. She had had breast feedings until three weeks before admission. She was then fed on half milk and half water with sugar to sweeten, every two hours until admission. "Sweeten to taste" is such an indefinite term that little can be determined as to actual percentages. Sometimes one and sometimes two teaspoonfuls to each bottle were used, the mother admitted. But here again the term was indefinite, for one teaspoonful could be so heaped that it would more than equal two level teaspoonfuls.

The baby was at no time ill while fed on the breast. Since weaning, however, the stools had become more and more frequent. Just previous to admission the stools were watery, green, and many in number each day.

On admission, the temperature was 103° F. and continued irregularly above normal for twenty days. The stools were two and three each day, liquid, green, and with mucus. After a starvation day on weak tea she was fed on low fat and two per cent. protein and five per cent. sugar, skimmed milk formula, using cane sugar at first and later dextramaltose. There was no improvement whatever in the facial eczema, in the condition of the stools or irregular temperature. The weight remained about stationary. Our thought at this time was that there was probably an intolerance for fat, which was causing the liquid stools, high temperature, and eczema. For the next nine days we used a modified whey formula with higher fats, hoping by this means favorably to influence salt and casein metabolism. There was no improvement.

After this period, concluding that the sugar must be at fault, we omitted all carbohydrates from the formula. Improvement was immediate; the next day the temperature fell, and daily the eczema could be seen to improve. In six days the face was entirely clear. The baby lost about eight ounces in weight, however, in the six days. The addition of a half dram of dextramaltose to each feeding (six ounces every fourth hour) was followed by a regain of the weight lost, but no more. After a few days of stationary weight, the sugar was increased suddenly to five per cent. There was an immediate return of the eczema, more mucus in the stools, and a slight but persistent elevation of temperature. Our mistake was realized and we again had to omit

all sugar. As before, all symptoms disappeared in a few days. Beginning now with small additions of sugar each few days, gradually developing an increased tolerance for this food element, we succeeded in getting small gains in weight and discharged the case apparently cured. Observation in the dispensary and social service department recorded continued improvement.

The report of this case offers nothing new to our study of infantile eczema, for it has long since been recognized that a metabolic intolerance for any of the food elements may be evidenced by eczema. Many times it has been found that a reduction in the amount of feeding, without any change in the percentages, will correct the condition. Many cases have been reported in which the reduction of fats has brought about a cure. Sometimes the removal of external sources of irritation, as adenoids, pediculi capitis, and adherent foreskin has occasioned improvement.

The case again emphasizes the importance of determining the cause of the symptoms, and that the removal of the cause will cure the patient without recourse to external applications. It also points out clearly that an intolerance for sugar alone may be the cause. The case was not one of general eczema, nor even a severe facial eczema, and I know from experience that in these types, external applications are most helpful, but of far more importance must be the removal of the exciting cause.

4321 FRANKFORD AVENUE.

CONGENITAL DIVERTICULUM OF THE URINARY BLADDER IN INFANTS AND CHILDREN.*

*A Contribution to the Clinical Diagnosis, with
Reports of Two Cases.*

By J. M. WALLFIELD, M. D.,
New York,

Attending Physician, Williamsburgh and Kingston Avenue Hospitals.

A pouch or sac opening out from a tubular organ is called a diverticulum. It seems to be of grave import when it is situated in the bladder. Dr. H. Fisher (Congenital Diverticula of the Bladder, *Surg., Gyn., and Obst.*, v, 10, p. 156, 1910) collected from literature forty-eight cases, of which thirty-two ended fatally, including those operated in. Of the forty-eight cases, six were in children below fourteen years of age. Two children (eight and twelve years of age) were cured by operation. The youngest case reported was of a child twenty months old. The ratio between the two sexes was about one female to ten males.

The high mortality may be due to mistaken diagnosis and sepsis. This anomaly is seldom thought of, and consequently easily overlooked, especially in infants and very young children, with disaster in the end. Since there is always residual urine in a bladder with a diverticulum, there is always the danger of an ascending infection with a fatal result. Dr. William Lerche (Surgical Treatment of Diverticulum of the Urinary Bladder, *Annals of Surgery*,

L, 5, p. 285, 1912) quotes English, who by a radical operation has had one death out of fifteen cases operated in. Such excellent results could not be expected if all fifteen cases operated in were in infants and very young children. However, by an early diagnosis of the true condition in the bladder, some youngsters could be saved from infection, which is the main cause of their early death. The two cases which had been seen by me in private practice led me to believe that a diagnosis of congenital diverticulum of the urinary bladder in early life is probable.

CASE I. W., white, male, American, aged nine years. Family history, negative. Previous history: Two years ago had a similar attack to the one to be described, which his physician diagnosed as cystic calculi, otherwise negative. Present status: Well nourished and normally developed boy in perfect health. He tried to urinate and felt a sudden pain. He was unable to void. The desire to urinate increased, and the pain grew in intensity. His mother had tried hot applications to the region of the bladder, without success. A soft rubber catheter was tried by me, but it failed to enter the bladder. A hard rubber catheter relieved him of his agony. Within a couple of weeks, he had another attack. Both times it felt as if the catheter met some obstruction within the bladder. The urine flowed from meatus along the sides of tube; only a few drops came by mouth of catheter. On removing the catheter, the tip showed some mucus streaked with blood. Rectal examinations did not throw any light on the case. The boy was sent to the hospital, where he was cystoscoped. A loose fold of mucous membrane was found hanging from upper wall of bladder, forming an obstruction to the outflow of urine at internal orifice of the urethra. No calculi were found. This boy was instructed to keep bowels open and avoid overdistention of the bladder. Almost five years passed and he had no more trouble.

CASE II. B., white, male, aged six months, American, breast fed. When three months old, his mother noticed at times a pink spot in centre of moist napkin. Baby cried a good deal whenever he had to move the bowels or to void urine. There was always a drop of urine at the meatus. He was treated for colic, but failed to improve in his disposition. When he was about six months old, mother once noticed some fecal matter mixed with mucus and blood. The alarmed mother had a doctor to see the patient twice the same day; calomel was described, but there was no improvement. Late in the evening I saw the patient, and found him moaning with rapid pulse, shallow respirations, and subnormal temperature. As soon as thermometer was removed, a mass composed of mucus and dark blood came through anal orifice. The abdomen was distended. External heat and stimulants brought the temperature up to above normal. Within eight hours a more thorough examination was made, with the belief that it is a case of intussusception. The bladder was distended above the pubis and a tense tumorlike mass was felt at the anterior wall of the rectum. After the examining finger was removed, mucus mixed with blood and some fecal matter came by rectum. The history and examination pointed toward the bladder as the offending organ. The parents were not satisfied with the grave prognosis of the case, and took the infant to a popular pediatricist in Manhattan. He promptly sent the baby to the hospital to be operated upon for intussusception, discarding the idea of an anomalous bladder. The surgeon, after opening the abdominal cavity, did not find any trouble in the intestines; but on further search, found a mass within the bladder. He opened the bladder, where he found a diverticulum. Patient died six weeks later from general sepsis.

The pressure of the distended bladder on the rectum produced irritation and congestion, which resulted in the discharge of mucus and blood in the stools, and obscured the true diagnosis in favor of intussusception. In Case I, the diagnosis of cystic calculi was made. In Case II, the diagnosis of intussusception was made. So could abdominal tu-

*Read before the staff of the Williamsburgh Hospital, March 1, 1915.

mor, appendicular abscess, or polyp, be mistaken for diverticulum of the bladder, because this latter condition is so seldom thought of.

When the patient is old enough to explain his subjective symptoms, he may help the physician to come to a true and more speedy conclusion. These are pain, inability to void, or on the contrary the patient may be able to void more urine immediately after urinating, owing to the presence of residual urine. There is often a history of incontinence since birth, cloudy or mucopurulent urine; sometimes hematuria; the finding of residual urine by catheter, and finally cystoscopy, will lead to an early diagnosis and proper treatment. But in infants and very young children, there is a deficiency in subjective symptoms and one must pay attention to the history as given by mother or nurse. Crying before or during the act of urination may be due to pressure within the bladder. A drop of urine at the meatus noticed more or less frequently is suggestive of residual urine. A stained napkin may be due to hematuria, or congestion of the bladder wall. A swelling above the symphysis pubis may be due to a distended bladder, as in the infant and young child the bladder normally extends upward into the abdominal cavity. On rectal examination, a tumefaction felt anteriorly will be strongly suggestive of bladder trouble. A final diagnosis can be made by taking radiographs in lateral and frontal views after filling the bladder with five or ten per cent. collargol solution. Bloody stools may be due to other causes than pressure from bladder; in enterocolitis the presence of mucus and blood in diarrheal stools passed with straining and fever, and absence of bladder symptoms will help to clear the diagnosis. The sudden onset, the paroxysmal colicky pains, the vomiting, the discharge of bloody mucus, the absence of fecal matter in the discharge, tenesmus, and sausage shaped tumor felt through abdomen, and, on rectal examination, a tumor felt from above, will help to avoid confusion between intussusception and diverticulum of the bladder. The absence of bladder symptoms will not interfere with the diagnosis of appendicular abscess or rectal polyp.

4101 TWELFTH AVENUE, BROOKLYN.

WATER AS A PHYSIOLOGICAL TONIC.

BY ALBERT C. GEYSER, M. D.,
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What is a tonic? If we peruse the *materia medica* we find there a great many drugs classified under the name "tonics." If we sift the meaning of the term tonic treatment, we are told that it consists in the use of "a medicine or agent which promotes nutrition or gives tone to the system. A tonic is therefore then a medicine or agent capable of arousing the physiological functions.

If you apply the whip or the spur to the horse, you are arousing his physiological functions; you are supplying a tonic, the agent being the whip or spur. Neither is it necessary to have recourse to an agent as tangible as the whip; frequently, the mere chirruping will bring forth physiological responses and there

the chirruping is the tonic. If we administer small doses of strychnine, arsenic, or quinine, at once the system responds, it causes an increase in all of the physiological functions of the body, for the purpose of overcoming or ridding itself from the noxious influence of the drug.

Medicinal tonics are no more part and parcel of the make up of the normal body than the whip and spur or even the harmless chirrup is a part of a normal horse. It has never seemed good logic to me to add something entirely foreign to a body whose functions seemed to need arousing. Yet that is exactly what we do when we administer a drug for its tonic action. The system rebels and brings into action every physiological function that it is capable of, only for the purpose of escaping from the irritant as the horse does from the blows of the cruel driver.

If we closely examine the real meaning of the word, tonic, as used in the medical sense, we come to the only proper conclusion that a tonic is a shock to which the system responds to the best of its ability. A blow struck with a whip is a shock to the horse, the tickling of the spur is a shock to the terminal nerve filament, the chirruping is a shock to the auditory apparatus of the horse. The normal horse, properly trained by experience, responds to this slight irritation, for, if the simple chirruping is not at once followed by a physiological reaction, a stronger tonic is applied until the desired results have been obtained, or, as only too frequently happens, the tonic dose becomes so strong as completely to incapacitate the horse. At this point the horse and the driver exchange intelligence, the horse refuses to budge and defies all the tonic effort of the driver until the driver becomes possessed of "horse sense" and allows the horse to rest, which is really the best of tonics under the circumstances.

Having become acquainted with the real meaning of the term, tonic, let us see where and when such a measure is indicated. It is obvious that a normal individual requires no tonic. An abnormal individual, or one whose functions for some reason do not seem to be at par, is the one upon whom we practise our "tonic" art. Men, women, and children will get below par; frequently their energies are lagging, they become torpid in mind and body and so require a tonic.

To a dormant, sleeping, fainting or toxic system nothing acts so lightninglike as a simple dash of cold water. As a producer of shock it has no equal. It does not maim the body, it requires no special skill or technic, it is cheap, obtainable almost anywhere, it is prompt in producing responses, no foreign body enters the system, and last but not least, it is entirely harmless.

We must always bear in mind the fact that drugs, especially the alkaloids, exhibit a seemingly physiological effect only when they are capable of entering into chemical union with certain tissue cells. There must be a mutual attraction between the tissue cells and the free alkaloids. Most alkaloids that are classed as tonics find their affinities with the cells of the spinal cord and the brain. Since nerve tissue controls in a large measure all of the physiological functions, it is not difficult of explanation, why the so called tonics exert a toning up influence upon the general system.

This union is of course not a natural one, and sooner or later these same tissue cells that were so willing to enter into an unholy alliance with the alkaloids find that they have reared for themselves a veritable Frankenstein's monster. The cells make heroic efforts to be rid of the alliance, but too frequently it happens that the willing servant not only turns master, but actually destroys the host. "Dead men tell no tales." If they did, digitalis as a "heart tonic" would be removed from the pharmacopœia.

Since we must have tonics, why not make use of such a simple one as cold water. Of course, it is understood that it is the discrepancy between the body temperature and that of the water that makes it a tonic. When two different temperatures meet, there is an attempt at equalization. The hotter the body, the colder the water, the greater the discrepancy, the greater the attempt at equalization, the greater the physiological responses. Immediately after the patient takes a cold bath, the red and white blood corpuscles are markedly increased in number. At our present state of knowledge we must assume that the marrow in all of the long bones, the spleen and lymph nodes comprise the cytogenic apparatus. That being the case, how does a cold bath increase the number of red and white blood corpuscles almost immediately? There is no doubt that the red blood corpuscles, beside doing a wonderful work in the chemistry of the body, are the agents intended for the carrying of oxygen to all the parts.

When, therefore, the sympathetic system suddenly perceives the cold upon the entire skin surface, a reflex stimulating effect is sent to the cytogenic mechanism, resulting in an immediate increase of its activity or a performance of its physiological function. It is the shock produced by the cold to the system and the reaction to this shock that causes the corpuscle producing organs to take on increased activity.

A bath at 80° F. taken in the morning when first rising from bed, is a shock to the system which results in the immediate increase of the number of the red and white corpuscles. Will the continuous taking of such tonic baths increase the number of red cells beyond the normal? Nature abhors anything that is not useful to the organism. As soon as the corpuscles fail in the performance of their function or when more have been created than the economy requires, they are destroyed in their passage through the liver and broken up into proteins for tissue defence and tissue building. This protein will ultimately be discharged into the blood stream to make up the proteins (globulin and albumin) of the serum the great common food supply for all the tissues, and an important source of energy for the bodily activities.

Each red corpuscle is a proteid body, its substance composed in part of hemoglobin. The formula for this has been computed as $C_{768}H_{1203}N_{195}O_{218}S_3$. To suppose that the organism exhausts this material and wastes the energy essential to its compounding merely to produce a transporter of unmodified oxygen, would require a reversal of all our conceptions of economy in the management in the cellular body politic. Yet such is the current conception of physiologists in general.

The immense value of a tonic bath taken for tonic

purposes is shown by this: The tonic bath hardens the system; once having the system trained to the reaction of the cold application, there is less and less danger of being influenced by atmospheric changes. Patients with a suitable diet and a morning tonic bath, in one month increased their blood count from the previous 3,000,000 to 5,500,000 per c.mm. Such patients, as a rule, have taken more or less of the stereotyped textbook tonics for months, yet never seem to gain their equilibrium. As soon as such patients are treated according to the laws of physiology they recover very promptly, if they can recover at all.

Every disease is curable, but not every patient. Day by day the public is taking more and more interest in matters medical. Dosing with patent medicine is lessening, even the scepticism of the patient is manifesting itself against so called "legitimate prescriptions." The doctor is forced to recognize the underlying principles of Nature's cure; he is becoming converted to physiological therapeutics. Enormous are the benefits that may accrue to the patient through recognition on the part of the physician of the principle that the blood corpuscles, white and red, are all important in the fight against bacterial disease.

Let us take as a typical illustration, because the most common and familiar, the case of a patient suffering from tuberculosis. Every human being at some time during his life is infected with the tubercle bacillus. In civilized nations all of the people have been tuberculized. Through this tuberculization, so well defended is the average system against its attacks, that ninety per cent. of all the persons of a given generation are able to throw off the invader, and to attain full individual immunity to its attacks. But ten per cent. in each generation are not able to thus ward off the attack; on the contrary they succumb. In them the mechanism of the leucocytic and the erythrocytic apparatus that should produce anti-ferments against the tubercle germ is altogether absent, or is devitalized and minimized in efficiency. Tuberculosis and anemia are almost inseparable. Such a patient requires tonic treatments; he is in urgent need of something that will start his cytogenic apparatus into full activity. There are three very important things that will do this, viz., proper food rich in fats and carbohydrates, scientifically regulated exercise of body and special breathing exercises, and the tonic effect of the cold baths. All these are at once followed by an enormous increase in red and white corpuscles. Greatest among these is the cold bath at 76° F., taken upon rising in the morning.

How to take a physiological tonic bath. The bath-room should be prepared by an attendant or some member of the family. The room must be warm, say about 80° F. The water in the tub must be at 80° F. and the tub so filled that the patient can at once be immersed. With some patients where 80° F. seems to give too much of a shock, it is well to begin with a temperature of 85° F. Patients soon become accustomed to this, then the temperature may be lowered two degrees each morning until 80° F. is reached. At this it must be kept for at least one month, when a further lowering may take place until 76° F. is reached. Lower than 76° F.

the temperature should never be for a tonic bath effect. A drop of twenty-two degrees applied suddenly over the entire body is sufficient to arouse any and all of the physiological functions.

A patient should remain from three to five minutes in the full bath. At first it is better if an attendant does the drying. Some Turkish towels are heated upon the radiator, and with these towels the patient is thoroughly rubbed until the skin is dry, red, and warm. As comfort may direct, the patient may be standing, sitting, or even lying down during this process. About fifteen minutes should be consumed in the rubbing; then the patient should rest in the horizontal position for thirty to sixty minutes. As soon as the red corpuscles are normal in number the patient is in a physical condition to dry himself. This exercise is a material aid if properly performed. It is followed by the usual rest, then with some light calisthenics for fifteen minutes such as deep breathing, that patient has had the best physiological tonic in the world.

231 WEST NINETY-SIXTH STREET.

Therapeutic Notes.

Treatment of Senile Pruritus.—E. Besnier, in *Quinzaine thérapeutique* for June 10, 1914, is stated to have advised that the following lotion be used each evening in senile pruritus:

R Phenolis,3i (4 grams);
Aceti,3vi (200 grams).

M. Sig.: Add two teaspoonfuls to a half glassful of hot water and use as wash over affected part.

The water used should be at a temperature of approximately 104° F. (40° C.). After the lotion has been used, the following dusting powder should be employed:

R Bismuthi subsalicylatis,3v (20 grams);
Amyli pulveris,3iii (90 grams).
M. et ft. pulvis.

Treatment of Syphilitic Renal Disease.—Munk, in *Dermatologische Zeitschrift* for July, 1914, describes an acute form of diffuse syphilitic nephritis, in which the chief manifestations are anemia and edema, together with marked lassitude, dyspnea, and sometimes headache. Vomiting and uremia may later appear, but the condition is, on the whole, insidious, fever and chills being usually absent. The urine is diminished in amount—only 300 to 1,200 c. c. per diem,—is highly concentrated and exhibits, in addition to albumin, a few red cells, more numerous leucocytes, hyaline, granular, and waxy casts, and in particular lipid casts, characterized by double refraction of the lipid material under polariscopic examination. Recovery begins in two or three weeks. Munk also refers to the chronic form of diffuse syphilitic nephritis. In the treatment of these cases the measures customarily employed in renal disease are recommended, with certain modifications. In the stage of edema and diminished urinary output in the acute parenchymatous form, diuretics, though apparently indicated, must be used with some care. If theophylline is given, a sudden desquamation of the diseased renal epithelium may

occur. Digitalis is in some cases very active. Purgation is also a very useful measure where the patient is not too greatly enfeebled. A strengthening diet is, in fact, directly indicated in these cases, including malt extract, eggs, milk, and meat in moderation, where pronounced edema does not exist at the time. Iron or iodine may be advantageously given in combination with the malt extract. Where considerable edema exists, the diet should be the same as in the ordinary forms of nephritis. Potassium iodide should be given, but not in large amounts. If there is not much edema, mercurial inunctions are also permissible and appropriate.

Treatment of Intestinal Disturbance Simulating Dysentery.—E. Leschke, in *Deutsche medizinische Wochenschrift* for December 3, 1914, refers to cases of diarrheal disorder simulating dysentery in which bacteriological examination proves the condition to be a harmless, temporary one, the specific microorganisms not being detected. In the treatment of such cases, the author reports marked success from the administration of charcoal in small masses, of which a large number, up to fifteen or even twenty-five, were given daily. Charcoal made from blood, finely powdered, was found especially efficient in absorbing putrefactive and other toxic products. Other measures employed were rest in bed, the application of moist heat to the abdomen, magnesium salts in some cases, and a liquid or soft diet. Under this treatment the stools became normal in a few days and a return to the ordinary diet could be promptly made.

Treatment of Atonic Constipation in the Aged.—Roch, in *Revue médicale de la Suisse romande* for February, 1915, calls attention to the good results obtainable in old persons suffering from constipation by the administration of very large doses of strychnine. The initial dose should be one twelfth grain (0.005 gram) per diem, and the physician need not hesitate thereafter to carry the amount gradually up to one third grain (0.02 gram). As distinct warning of an excessive action of strychnine is given in the form of muscular rigidity and trismus, no serious toxic effects of the drug need be feared. [A dangerous doctrine.—Eds.]

The effects of the remedy are illustrated in the case of a woman of eighty years with constipation so obstinate that the bowel movements had become reduced to two or three a month. The ordinary purgatives no longer acted. The abdomen was hard, the bowel distended with scybala and very sensitive to palpation, and the general condition poor. Copious bowel irrigations, administered for a month when the patient entered the hospital, had no true useful effect, though they evacuated the intestine. As soon as strychnine was prescribed, on the other hand, a complete transformation took place. In a few days, spontaneous defecation occurred, abdominal pain was markedly relieved, and the general condition was considerably improved. Further trials showed that nux vomica, though less easily given, in the large amounts required, than strychnine in one sixtieth grain (0.001 gram) granules, can be substituted for it with satisfactory results. Strychnine treatment is, of course, contraindicated where constipation is of the spastic variety.

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MEDICAL ETHICS.

From the earliest days of medicine up to the present there have been many useful drugs and methods for the treatment of the sick discovered and promulgated by those who were not members of the profession. When the value of such remedies was shown, however, they were taken up and employed by physicians. It is very evident, therefore, to those who know, that the source of the idea is of little importance if its usefulness can be demonstrated. Nevertheless, only the members of the medical profession must determine whether or not a given remedy or method shall be employed, because it is upon them that the responsibility for human life ultimately devolves. In order that there shall be a proper safeguarding of the men and women under their care, there has evolved during the past ages a guide to behavior known as the code of medical ethics. That these rules are not faultless is admitted, but in the majority of instances they serve a good purpose. This same code, however, is an obstruction and a stumbling block, according to the views of the laity. In a recent semimedical book by two of the laity, this attitude is very clearly revealed. They state that "it is difficult for an outsider to grasp the sanctity among physicians of the idea" (ethics). They believe that "the avoidance of general publicity in medical matters until the particular contribution has become a matter of general practice seems to offer more

dangers than safeguards. Oliver Wendell Holmes was laughed at, Semmelweis was driven insane, and a whole generation of women were deprived of the benefits of asepsis in childbirth, because there was no body of outside opinion to support these physicians in their work."

We do not for a moment uphold obstruction and interference to progress, but the men competent to pass judgment are those carrying on the work. From the very nature of the case, "a body of outside opinion" that carries weight is likely to support medical ethics.

Medical ethics may not be perfect, yet where human lives are concerned conservatism is essential. There have been too many attempts on the part of the public to advance valueless methods to make it possible for physicians to disregard the responsibilities that rest upon them.

GASTRIC ANALYSIS.

With the development of laboratory aids to diagnosis there has arisen among a large proportion of practising physicians too great a tendency to rely upon their results. This is particularly true of such a seemingly simple procedure as the analysis of the gastric contents. The reliance placed on these laboratory methods has gone so far in certain cases as to lead the physician to accept the results of findings which fail to accord with the clinical observations. Gastric analysis is not always a trustworthy index of the functional condition of the stomach, and we are prone to fall into serious errors.

When a test meal is given and withdrawn after a fixed interval, it is supposed to give valuable information concerning the secretion of hydrochloric acid particularly, as well as some index of the gastric motility as determined by the volume of the recovered contents. It has been recognized, however, that this was a very imperfect means of estimating gastric motility, and röntgenologists have come to the fore with the results they have been able to secure with the aid of the bismuth meal. The two great disadvantages of this method lie in its considerable cost, and in the inherent fallacies which are associated with the attempt to correlate the phenomena observed under the influence of an inert protective substance with those which are supposed to take place when food is introduced into the organ. It now remains possible that some modifications of the test meal which have been recently introduced may bring this back into its position of trust by making the results more comprehensive and more accurate.

Recently Trevor Heaton (*British Medical Journal*, April 24, 1915) has reported upon a very simple

and serviceable modification of the test meal. It consists in the addition to the conventional roll and tea of an amount of urea sufficient to make its concentration in the meal equal to one per cent. This substance is foreign to the gastric contents and is both innocuous and easily measured quantitatively. When the meal is removed, the amount obtained is carefully measured and the ordinary determinations of acids, etc., are made. In addition, the percentage of urea is determined by the simple hypobromite method, or by means of one of the more delicate urease tests. This determination of the urea content gives the basis upon which to calculate the proportion of gastric juice in the recovered fluid, the amount of hydrochloric acid secreted as well as its strength in the gastric juice, and the motility of the organ.

The author does not advance for the method that it will give absolutely accurate results, but he does make the conservative statement that it affords a means of determining approximately the conditions present. It is certainly easy to determine the presence of hypoacidity or hyperacidity, the existence of hyposecretion or hypersecretion, and whether or not there is a normal rate of emptying of the organ. It also possesses the special advantages of testing these functions under conditions which closely simulate those of everyday life, and of being both quite simple in its technic and quite inexpensive.

It is yet too early to venture a positive opinion as to the validity of the author's statements, for similar methods have been previously advocated, against which objection has been raised sufficient to prevent their general utility. There does not, however, appear to be any obvious reason for discrediting this new modification, which seems to be a real contribution to the advancement of our diagnostic methods. It is to be hoped that American workers will soon confirm or refute its value, for if it is essentially correct, the gain to the physician and his patients from having a simple and trustworthy means of determining some of the more important functions of the stomach will be too great to be forfeited.

WEATHER AND WORK.

The connection between states of the weather and general conditions of the body have been long recognized, but our notions of the interrelationship have been rather ill defined. Perhaps the first serious effort at determining some definite laws underlying this matter has been made by Doctor Huntington, of Yale University, who published his findings in the January number of *Harper's Magazine*.

Doctor Huntington used as his data on the more physical side of the question the records of the out-

put of five hundred operatives, paid by the piece, in Bridgeport, New Britain, and New Haven, and on the more purely mental side from the scholastic records of 1,600 students at West Point and Annapolis. The data were well selected and included a sufficient number of persons under conditions to make them trustworthy. The findings are interesting and instructive, and, while they go somewhat against generally conceived notions, yet they agree with biological laws on which they would be expected to rest.

The plotted curve of output of factory hands, under the constant stimulus of pay in proportion to amount of work turned out, reaches its lowest mark in January, remains low through February and March, climbs rapidly to a large output in May and June, falls somewhat, though not greatly, in July, and again ascends rapidly to a maximum in late October and early November. This highest limit of neuromuscular efficiency represents about ten per cent. more work than the low ebb of January. The record of work in mathematics done at the national military schools shows two similar maxima in spring and fall, separated by the same period of depression in midwinter that affects the factory worker.

In attempting to explain the causes underlying these seasonal fluctuations in human capacity for work, Doctor Huntington rules out the length of daylight as of no great moment, for the output of work rises steadily with the decreasing length of days from September to November. Life indoors and artificial heat also seem to have no appreciable effect, since the output of work steadily increases in spring, while the worker still lives and labors behind closed doors and windows in late winter and early spring.

The efficiency curve follows too closely the temperature curve to leave any doubt that thermal conditions are at the bottom of the variation in human working capacity. Such capacity is depressed by both very high and very low temperatures, especially by the latter. Mental activity seems to reach its best when the temperature is about 38° and physical activity when it is at 60° F. In connection herewith it may be recalled that the best athletic records have been made in warm weather.

Other forms of life show a similar fluctuation of activity according to the temperature—infusoria reaching their acme at about 83° and the crayfish at 73°. It would be interesting to know to what extent the activity of man is influenced by his heat retaining clothing; whether if he was in a nude state, the temperature at which he is most active would not be higher than that shown by these statistics. It is evident, however, that our present

means of combating cold by clothing, shelter, and fire, are not sufficient to prevent the depressing effects of low temperatures.

Prolonged exposure to low or high temperatures renders all warm blooded animals more liable to infection, and one would expect a line representing the statistics of morbidity to run parallel to the line picturing the variations in capacity for work. The mortality rate follows much the same course, somewhat delayed, and reaches its highest in midwinter and midsummer, and its lowest in the spring and fall.

It is to be hoped that other such investigations of the effect of meteorological conditions on human health and efficiency will follow, now that the ground has been well broken.

CANCER AND THE PLANT KINGDOM.

The study of cancer which appeared in the issue of the JOURNAL for May 15th speaks for itself. It is interesting, however, to recognize in the mixture of plant extracts, used both as a poultice and internally, reminders of a picturesque formula which, in one guise or another, antedates Christianity. The orvietan of the days preceding the French Revolution, the alexipharmacum or mithridate of Greek and Roman medicine, the astonishing confectio damocratis, which until quite recently was an ingredient of Warburg's tincture, are all ancestors or co-descendants of this Austrian specific. Similar mixtures are still widely sold in the United States, little known save to cancer sufferers because they are advertised from mouth to mouth and not through newspapers. These are popularly supposed to be of Indian tribal origin, but it is more likely that one or more formulas were sold to the Indians by early explorers. The interesting book by Beach, who is held by the Eclectic school to be the founder of their therapeutics, was published about 1829; it offered a poultice for cancer composed of stramonium, cicuta (*conium maculatum*), belladonna, yellow dockroot, and pokeberry. For pain, steaming was ordered with a decoction of boneset, wormwood, hoarhound, and hops. Internally, Beach prescribed a syrup made up of sarsaparilla, guaiacum, sassafras, elder flowers, and burdock root; and he warned all sufferers against surgery and arsenic pastes. His patients drank copiously, also, of yellow dock tea. The secret modern mixtures resemble the Austrian formula much more closely; in popular language the latter reads: Marsh clover, yellow clover, balm mint, white cabbage, liverwort, pansy, camomile, bitter apple, quassia, nettle, rhubarb, and hyssop, a list which will ring reminiscently in many a sufferer's ear. Has a genuine case of malignant

disease ever been cured by these plant extracts? It seems hard to believe that no case has, at least, ever spontaneously healed under irregular treatment, an outcome that would obviously be hailed rapturously as a "cure" and a justification. It is strange, from any viewpoint, how persistently man has reverted to the vegetable kingdom for an ally against the dreadful enemy, seeing that scientific medicine has again and again reluctantly but positively discarded all the "roots, barks, herbs, and medicinal plants" of the long procession of believing herbalists.

MIRACLES EXPECTED FROM EMETINE.

In the *Dominion Dental Journal* for April, 1915, Dr. A. J. McDonagh is cited as having predicted that some enterprising drug company would place emetine on the market in a form for daily use by the public. This prediction has now come true. Patients suffering from pyorrhea carry a small bottle of the solution in their pocket, and, as occasion demands, wind a little cotton wool on a toothpick, dip it into the solution, and moisten the gums. One patient stated that he could feel the gums just knit up around the necks of the teeth for several minutes after every application! According to the dental authority, there is going to be money in this game for some one. The simplicity of this treatment will take with the public. It will beat the alkaline mouth wash and the disinfectant mouth wash for dental caries as a money maker.

This talk of injecting a few drops of emetine and thereby curing pyorrhea without removing the irritant is the statement of men who do not know much of pathology or practice, or have some ulterior motive to serve. To this comment of the dental periodical, we may add the expression of our hope that physicians will not be stampeded by the new miracles attributed to emetine, a useful drug when properly used within well defined limits.

HEMATURIA AS A COMPLICATION OF PREGNANCY.

W. L. Kirkwood, of Wollongong, N. S. W., reports a case of this rare condition to the *British Medical Journal* for May 1, 1915. Mrs. W., aged thirty years, in the ninth month of her fourth pregnancy, sent for him, February 24, 1914. On the previous evening she observed that her urine was blood red. On the morning of his visit she was suffering from scalding and frequency of micturition and a bearing down pain. There was no other symptom. The urine was thick with blood, specific gravity 1020, neutral, and contained much albumin. Numerous blood corpuscles were seen in the sediment, but none of them as blood casts. There were a few pavement cells, but no pus cells, nor any bacilli, tubercle or other. There was no tenderness of the urethra, of the base of the bladder, nor of either kidney. Potassium citrate with belladonna and hyoscyamus was given and the discomfort disappeared in twenty-four hours, but the hematuria

continued until ten days after her confinement, which was a normal one, and recurred three weeks later. The blood disappeared as suddenly as it came; the urine on the twelfth day was, specific gravity 1016, acid, and free of abnormal constituent.

THE WRIST WATCH IN WARFARE.

Considerable use of the wrist watch is to be found in all the armies in the present European war. It is generally worn on the left wrist, although, as a result of their exposed position, the left hand and forearm are very frequently hit by the infantry bullets. When high velocity projectiles chance to strike the watch fairly, the effect is to shatter it into unrecognizable fragments. These fragments are often driven directly into the bones of the wrist, hand, or forearm, the resulting damage being so radical that no treatment can restore the industrial use of the arm to the patient. Many of these injuries have been reported in the German army, according to the *Dominion Medical Monthly* for May, 1915. If the precaution has not already been taken, prohibition of the wrist watch altogether will likely be adopted.

SILVER PERMANGANATE.

According to *Presse médicale* for April 29, 1915, the Société de médecine de Paris, at its meeting on March 26th, discussed the value of silver permanganate as a treatment for certain skin lesions. Butte reported good results in facial lupus, and Huerre testified to the permanence of solutions varying in strength from five in 1,000 to one in 100,000; these remained unchanged for twelve days.

News Items.

Changes of Address.—Dr. John H. Telfair, to 3113 Kingsbridge Avenue, New York.

Reporting Suppurative Conjunctivitis.—The Department of Health of the City of New York calls the attention of physicians in New York to Section 86 of the Sanitary code, which requires them to report all cases of suppurative conjunctivitis occurring in their practice. The department will hereafter prosecute any physician who fails to comply with this important regulation.

Kansas Medical Society.—At the closing session of the annual meeting of this society, held in Kansas City on May 5th and 6th, the following officers were elected: Dr. O. D. Walker, of Salina, president; Dr. C. W. Jones, of Olathe, Dr. B. F. Chilcott, of Osborne, and Dr. J. R. Scott, of Newton, vice-presidents; Dr. C. S. Huffman, of Columbus, secretary; Dr. L. H. Munn, of Topeka, secretary; Dr. W. F. Sawhill, of Concordia, and Dr. M. F. Jarrell, of Fort Scott, delegates to the session of the American Medical Association at San Francisco in June. The society will meet in Topeka next year.

The Study of Occupational Diseases.—Physicians who are interested in the subject of occupational diseases will find the clinical history cards prepared by the department of health for use in their new occupational clinic, at 49 Lafayette Street, not only of interest but a possible help to indicate the lines along which investigation may yield important clinical results. The items on these cards have a special bearing on industrial diseases, and it said that if the data were obtained in the course of clinical examinations conducted in dispensaries, hospitals, or in private practice, a number of obscure diseases whose causes lie in the occupation of the individual, would be brought to light.

Fumigation in Brill's Disease.—Because of the admitted identity of Brill's disease and typhus fever, and the possibility that cases of typhus fever may enter the port of New York in the near future, careful investigation is to be made hereafter by the department of health in all reported cases of Brill's disease, with a view to sulphur fumigation of premises and steam sterilization of bedding and goods.

Missouri State Medical Association.—Dr. C. R. Woodson, of St. Joseph, Mo., was elected president of this association, at the fifty-eighth annual meeting held in St. Joseph, May 10th, 11th, and 12th, succeeding Dr. H. C. Shuttee, of West Plains. Dr. E. J. Goodwin, of St. Louis, was reelected secretary, and Dr. J. Frank Welch, of Salisbury, reelected treasurer. Excelsior Springs was chosen as the next meeting place, but the date was not decided upon.

Examination for Assistant Surgeons in the Public Health Service.—Boards of commissioned medical officers will be convened to meet at various places throughout the United States on Monday, June 21st, for the purpose of examining candidates for admission to the grade of assistant surgeon in the United States Public Health Service. For further particulars regarding the examination address the Surgeon General of the United States Public Health Service, Washington, D. C.

Honorary Degrees Conferred by the Washington University Medical School.—At the dedication of the new buildings of the medical department of Washington University, St. Louis, held on April 29th and 30th, the following honorary degrees were given: Doctor of science, Dr. W. T. Porter, Dr. O. E. Folin, and Dr. Theodore Janeway; doctor of laws, Professor R. H. Chittenden, Surgeon General William C. Gorgas, President H. R. Hill, President A. L. Lowell, President George E. Vincent, Dr. F. P. Mall, Dr. Abraham Jacobi, Dr. Simon Flexner, Dr. W. H. Welch, Dr. S. J. Meltzer, Dr. W. H. Howell, and Dr. Rudolph Matas.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Monday, May 24th, North Branch of the County Medical Society, Section in General Medicine of the College of Physicians; Tuesday, May 25th, West Philadelphia Medical Association, Society of Normal and Pathological Physiology; Wednesday, May 26th, Kensington Branch of the County Medical Society; Thursday, May 27th, Pathological Society, Northwest Branch of the County Medical Society, Physicians' Motor Club (annual run); Friday, May 28th, Northern Medical Association; South Branch of the County Medical Society, Medical Club (directors).

The Cancer Campaign.—Dr. Jonathan M. Wainwright, of Scranton, Pa., chairman of the Subcommittee on Cancer of the Committee on Health and Public Instruction of the Medical Society of the State of Pennsylvania, reports that almost every medical journal of consequence in the United States will take part in the cancer campaign in July, which was organized at the suggestion of this society. Doctor Wainwright also reports that the State medical societies of the following States are now engaged in special cancer work: Arizona, Arkansas, Colorado, Indiana, Kentucky, Kansas, Louisiana, Maine, Maryland, Massachusetts, Missouri, Montana, Nebraska, New York, North Carolina, Ohio, Pennsylvania, South Dakota, Texas, Utah, Vermont, Washington, West Virginia, and Wisconsin. Twenty-nine counties in Pennsylvania will hold special cancer meetings in June.

State Medical Association of Texas.—At the tenth annual meeting of this association, held in Fort Worth on May 4th, 5th, and 6th, the following officers were elected: President, Dr. G. H. Moody, of San Antonio; president-elect, Dr. J. M. Inge, of Denton; first vice-president, Dr. W. F. Bledsoe, of Fort Arthur; second vice-president, Dr. H. C. Black, of Waco; third vice-president, Dr. T. D. Frizzell, of Quanah; Councillors, First District, Dr. F. P. Miller, of El Paso; Fourth District, Dr. S. C. Parsons, of San Angelo; Eleventh District, Dr. C. C. Nash, of Waco; Thirteenth District, Dr. Charles B. Williams, of Mineral Wells; Fourteenth District, Dr. A. W. Carnes, of Hillsboro. Dr. W. R. Thompson, of Fort Worth, was reelected trustee for five years and becomes chairman of the board. Next year's meeting will be held in Galveston. A new constitution and set of bylaws containing several radical and important changes were adopted by the house of delegates.

To Discuss the Law Concerning Contraceptive Measures.—A meeting of physicians and social workers will take place on Wednesday, May 26th, at the New York Academy of Medicine, to discuss the State law dealing with giving information about the prevention of conception. An attempt will be made to introduce an amendment exempting physicians from the operation of the law. Dr. A. Jacobi will preside and among the speakers will be Dr. William J. Robinson, Dr. Ira S. Wile, Dr. S. A. Knopf, and Dr. Lydia De Vilbiss.

Mississippi State Medical Association.—The following officers were elected at the forty-eighth annual meeting of this association, held in Hattiesburg, Miss., on May 11th and 12th: President, Dr. I. W. Cooper, of Newton; vice-presidents, Dr. W. H. Scudder, of Mayersville; Dr. J. W. Lucas, of Moorhead, and Dr. W. L. Orr, of Fulton; councillors, third district, Dr. C. M. Hurry, of Ripley; fourth, Dr. F. J. Underwood, of Nettleton; ninth, Dr. J. C. McNair, of Fayette. Members of the State board of health, Dr. S. W. Glass, of Lyon; Dr. T. F. Elkin, of Tupelo; Dr. S. E. Eason, of New Albany; Dr. J. H. Johnson, of Brookhaven, and Dr. T. H. Seay, of Laurel. Delegate to the American Medical Association, which meets in San Francisco, Dr. J. S. Ullman, of Natchez. Greenville was selected for the 1916 convention.

Public Health Activities of the New York Academy of Medicine.—A summary of the activities of the Public Health Committee of the New York Academy of Medicine for the months of March and April includes reports on the following topics: Certified milk, autopsies, the fifth medical year, the convalescent care of children suffering from heart disease, the provision of adequate facilities for the care and treatment of drug habitués, homes for the aged, medical service at the workhouse on Blackwell's Island, quarantine, and health legislation. In regard to health legislation the committee has given special consideration to many of the bills relating to public health matters introduced in the last legislature. It has strongly opposed the Hinman bills which aimed to amend the present State health law, and also opposed the bill exempting Christian science practitioners from the provisions of the Medical Practice Act, presenting the following resolution to the special committee of the legislature in regard to this bill:

Resolved, That the Public Health Committee of the New York Academy of Medicine opposes Assembly Bill No. 863, to amend the public health law. The effect of this bill would be to free from the limitations of medical practice those engaged in "the practice of Christian Science for the prevention or cure of disease," and would thereby permit the care of contagious diseases, such as diphtheria and scarlet fever, by persons whose capacity for diagnosis and knowledge of the treatment and of the means of limiting the spread of these diseases have not been submitted to examination and are most doubtful. The committee regards this condition as a distinct menace to public health and is strongly opposed to the bill which makes it possible.

Reunion of Medical Alumni of the University of Buffalo.—The fortieth annual meeting of the Alumni Association of the Medical Department of the University of Buffalo will be held in Buffalo, June 1st to 5th. Plans are under way to make this meeting the best in the history of the organization. The membership of the association consists of all living graduates from the medical department of the University of Buffalo and from the University of Niagara, which was amalgamated with the University of Buffalo in 1899. There are in all about 1,800 members, residing in various parts of the United States, Canada, Europe, China, Japan, and Egypt. According to the preliminary program Tuesday, the first day of the meeting, will be devoted to fraternity and class reunions and luncheons; scientific sessions will be held on Wednesday and Thursday; the annual business meeting will be held on Wednesday, at which time the constitution and bylaws of the association are to be revised. The annual banquet, which is the social event of the meeting, will take place on Thursday evening, June 3d. The commencement exercises of all departments of the university will be held at the Teck Theatre on Friday, June 4th. Further details regarding the meeting will be announced later. The officers of the association are: Dr. George F. Cott, '84, president, Buffalo, N. Y.; Dr. Robert T. French, '88, first vice-president, Rochester, N. Y.; Dr. William House, '95, second vice-president, Portland, Ore.; Dr. Abram T. Kerr, '97, third vice-president, Ithaca, N. Y.; Dr. Burt C. Johnson, '90, fourth vice-president, Buffalo, N. Y.; Dr. Mary B. Moody, '76, fifth vice-president, Los Angeles, Cal.; Dr. Julius Richter, '04, secretary, Buffalo, N. Y.; Dr. William F. Jacobs, '08, treasurer, Buffalo, N. Y.

Personal.—Dr. L. A. Buckner, of Dermott, has been elected president of the Arkansas State Board of Health, succeeding Dr. S. A. Southall, of Lonoke. Dr. C. W. Garrison, of Little Rock, was reelected secretary.

Dr. Ross M. Bradley, of Lowville, N. Y., will sail from San Francisco on May 22d, for China, where he will take charge of the eye department of the Methodist Episcopal Hospital at Wuhu for the summer. In the fall Doctor Bradley will be transferred to the Hopkin Memorial Hospital at Pekin.

Dr. Richard H. Creel, of the United States Public Health Service, has been granted leave of absence from the service to accept the position of health officer of Boston.

Dr. J. B. Kinnaird, of Lancaster, Ky., has been appointed president of the Kentucky Association of Railway Surgeons; Dr. M. E. Alderson, of Russellville, first vice-president; Dr. A. O. Sick, of Earlington, second vice-president, and Dr. Clarence H. Vaught, of Richmond, secretary-treasurer.

Dr. Thomas F. Harrington, director of school hygiene of the Boston public schools, was unanimously elected deputy commissioner of labor and industries at a recent meeting of the State Board of Labor and Industries.

Dr. Charles Lyman Greene, of St. Paul, professor of medicine in the University of Minnesota, has resigned from the Minnesota State Board of Health.

Dr. Benjamin Schwartz has been appointed a coroner's physician, to fill a vacancy in the board caused by the recent resignation of Dr. Otto H. Schultz to become medical advisor to the district attorney's staff.

Dr. Lucius P. Brown, State Food and Drug Commissioner of Tennessee, has been appointed director of the Bureau of Food Inspection in the Department of Health of the City of New York, at a salary of \$5,000 a year, and will take up his new duties at once.

Dr. W. H. B. Aikins was elected president of the Toronto Academy of Medicine at the annual meeting held on the afternoon of May 4th.

American Aid for Belgian Physicians.—The report of the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession for the week ending May 15, 1915, is as follows: Contributions—Dr. Franklin B. Miller, Pittsburgh, Pa., \$25; Dr. N. S. Jarvis, Captain, United States Army, New York, \$15; Dr. Charles G. R. Jennings, Elmira, N. Y., \$25; Dr. H. E. Jenkins, Passed Assistant Surgeon, United States Navy, Port Royal, S. C., \$5; Dr. Luther G. Paul, Boston, \$5; Dr. M. C. Smith, Lynn, Mass., \$5; Arkansas Medical Society, Little Rock, Ark., \$50; Dr. Charles Henderson Miller, Chicago, \$10; receipts for the week, \$140; previously reported receipts, \$6,720.50; total receipts, \$6,860.50. Previously reported disbursements: 1,625 standard boxes of food at \$2.20, \$3,575; 1,309 standard boxes of food at \$2.30, \$3,010.70; total disbursements, \$6,585.70; balance, \$274.80.

An Educational Lunch Room has been established by the Bureau of Public Health Education of the Department of Health of the City of New York in the health department offices, for the benefit of employees. The object of the lunch room is primarily to provide a wholesome luncheon at cost price, and secondarily to educate the patrons in the matter of food and nutrition. The menu is unique in that it gives, not only the price of each item, but also the quantity and the number of calories and the amount of protein furnished. For instance, we find apple pie is standardized as one sixth of a pie, selling at five cents and yielding 300 calories and 4 grams of protein. The stickler for standardization will rather balk at "an average helping of mashed creamed potatoes" and wonder how the 150 calories and 4 grams of protein yielded could be determined on such a variable quantity as "an average helping." With cheese, however, we have more definite information, one cubic inch yielding 190 calories and 8 grams of protein. This is exactly double the quantity of protein and considerably more than the number of calories furnished by the apple pie to which the cheese is a gratis accompaniment. Specimen luncheons furnishing a balanced ration are listed, one of which, the low cost luncheon, furnishes from 1,320 to 1,410 calories and 25.5 to 33.5 grams of protein, at a cost of 22 cents, while the high cost luncheon, costing 46 cents, provides from 1,520 to 1,840 calories and from 50 to 53 grams of protein. The lunch room was opened on May 10th, Professor Graham Lusk, the acting mayor, the president of the Borough of Manhattan, and others interested being present. The expenses of the lunch room are borne by the employees.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

March 22, 1915.

Treatment of Moist Eczema, by P. G. Unna.—Owing to the cost of dressings in war, Unna advocates the use of suitable pastes in the treatment of moist eczema. The pastes are of such consistence as to remain in contact with the tissues without softening and running at body temperature. Such a paste can be readily made from Wilson's zinc salve, and has the following composition: Sulphur depuratum and calcium carbonate, of each ten parts, with zinc oxide ointment to make 100 parts. This should be applied frequently, and if it becomes hardened on the skin it may be made soft by the addition of a few drops of water. A second useful paste consists of ten parts each of zinc oxide, sulphur depuratum and calcium carbonate in seventy parts of boric acid ointment. The organisms are killed by the effects of the dehydrating and reducing agents contained in this preparation. The zinc oxide and the calcium carbonate also reduce pain and hyperemia by virtue of their decided basic characters. These pastes are also serviceable in shortening the course of the pustulation of vaccination, and prevent the possible occurrence of vaccine erysipelas without in any way interfering with the effectiveness of the immunization.

Familial Gastric Cancer, by P. K. Pel.—A man and woman without family history of cancer, and both of whom died without themselves having cancer, had seven children. Of these one son died aged sixty-four years, of gastric cancer, a second son died of the same condition at the age of sixty years, a daughter at forty-three years, a second daughter at fifty-six years of age, and a fifth child, a man now aged fifty-eight years is at present suffering from typical gastric cancer. The other two children are free from cancer at the ages of sixty and sixty-eight years respectively. A second family is recorded, covering eighteen individuals of three generations. Of these ten had cancer in some portion of the alimentary canal. Four brothers had cancer in the alimentary canal; one married a healthy woman, who died at eighty-six years of age without cancer, although her two brothers each had cancer. This couple had nine children, of whom three died of cancer of the stomach or esophagus. One of the children, a not cancerous daughter, married and had two children. One of these died in her fortieth year from gastric cancer, while the other is living and well. Such families carefully studied would seem to indicate that there is at least a certain hereditary factor in cancer, both on account of the frequency with which the disease occurred in the offspring and because the disease tended to involve the same structures in all cases.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

March 20, 1915.

Prophylaxis and Treatment of Venereal Diseases in the Army, by J. Jadassohn.—Jadassohn urges that the troops should be repeatedly instructed in the seriousness of venereal diseases, in the forms in which they may appear, and in the means

of protection. He thinks that sexual abstinence has not been proved to have any harmful influence, and that any resulting harm is at least improbable for the great majority of men. Personal prophylaxis consists in the use of chemical or mechanical preventives. He urges a rigid examination of prostitutes in the neighborhood of troops, and a systematic examination of the men at certain intervals, of the entire body of the soldier. Early diagnosis and early treatment is emphasized, and then it is considered how far it is possible to carry out treatment in marching troops. This problem becomes still more difficult on the battle line.

March 27, 1915.

Acoustic Trauma and Personal Protection Against Occupational Deafness, by Siebenmann.—The experiments described seem to show that plugging of the external auditory canal with an airless mass, such as cotton soaked in oil, protects the hearing apparatus from the well known results of concussions which produce an acoustic traumatism of the labyrinth.

WIENER KLINISCHE WOCHENSCHRIFT

April 15, 1915.

Eye Injuries in War, by R. Possek.—Most of the injuries are caused by the explosion of shrapnel or bombs, stab wounds of the eye being rarely seen. Nonperforating wounds are usually caused by an explosion nearby, the particles of sand or shot entering the cornea and becoming imbedded there. In nonperforating wounds the treatment is conservative and the prognosis is comparatively good. The great danger in perforating wounds is infection which may be caused by the germs present in the conjunctiva, by the foreign body or by the instruments. The subsequent occurrence of sympathetic ophthalmia is also to be considered. If the foreign body is of iron or steel, the magnet is of great value but quite often it is not. There is great difficulty in localizing the foreign body with the ophthalmoscope, especially if the humors are not clear. At times the x ray is of little assistance because of the minuteness of the penetrating body. Prophylactically the best treatment for sympathetic ophthalmia is the enucleation of the injured eye. When this procedure is carried out there is still danger of infection for a time. The operation of enucleation is to be preferred to evisceration.

Vaccine Therapy of Typhoid Fever, by J. Sladek and S. Kotlowski.—A vaccine prepared according to the method of Besredka was employed; it was administered intravenously. The patients received one c. c., being equivalent to 250 million dead bacteria. Following the injections the patients complained of chill, and it was observed that after some time the pulse rate remained high although the temperature fell. The pulse itself was small, at times imperceptible, with blood pressure low—the pulse of cardiac collapse. Diarrhea was also present. Of four patients injected, one died, the symptoms of cardiac collapse being very pronounced, although previous examination showed that the patient was free from any circulatory disturbance. The autopsy revealed the typical intestinal findings of typhoid fever, but no pulmonary complication. In

view of these observations and also of the fact that on the same service sixty cases of typhoid, presenting all sorts of complications, were treated without vaccines, only one death occurring, the further use of the vaccine has been discontinued.

Treatment of Cholera with Animal Charcoal, by Fritz Groak.—In thirty cases of cholera treated solely with bolus alba, eleven patients died, a mortality of over thirty per cent. The treatment with animal charcoal aided by subcutaneous injections of hypertonic, 1.5 per cent., salt solution caused a decided change. Every cholera patient in whom the bacteriological diagnosis was positive received five grams (a heaping teaspoonful) of animal charcoal four times daily. At first the entire dose was given at one time dissolved in two litres of water. This, however, led to vomiting. It was then administered with cognac, being sipped at intervals of ten minutes, in which manner it was well borne. The mortality under this form of treatment reached only twelve per cent. While the animal charcoal was administered the patients received from one to 2.5 litres of the hypertonic salt solution daily. The patients did not object to taking the medication and some of the convalescents even longed for it. It has been used in all varieties of gastroenteritis and dysentery and has given entire satisfaction.

April 22, 1915.

The Kidneys in Relapsing Fever, by Leo Jarno.—Examination of the urine in 170 cases of spirillum of Obermeier in the blood showed albumin and granular casts. Albumin appears as early as the first day, and on the second day it is present in from 0.5 per cent. to 1.5 per cent. As the fever recedes, the amount of albumin diminishes and the number of casts becomes less. About the fourth day free from fever the urine is normal. In the first relapse the albumin and casts reappear as in the primary attack. In the succeeding attacks the albumin is less and the casts may be entirely absent. Hemorrhagic nephritis is a very rare complication. The kidney is apparently violently affected but not permanently. Neosalvarsan has materially helped in the treatment of these cases.

Besredka Vaccine in Typhoid Fever, by H. Boral.—A case of typhoid treated with this vaccine (sensitized typhoid bacilli) is reported. The injection was followed in a short time by a chill and within two hours blood appeared in the stool, pure blood being subsequently passed. Symptoms of collapse were present and active stimulation was required. The patient was kept alive for three days, at the end of which time death occurred. Of interest in this case was the rapid occurrence of blood in the stool, the patient having had stools just previous to the injection without any trace of blood being present. The author has used Vincent's vaccine with profit in the treatment of twenty-eight cases of typhoid without hemorrhage or collapse and advises caution in the intravenous administration of the Besredka vaccine.

A New Remedy against Lice, by Eugene Eckert.—Carbon bisulphide has been used and has been found to meet all the requirements of a louse destroying agent. It is prepared by passing sulphur fumes over red hot coal. When fresh it has a disagreeable odor which it loses on distillation.

To use it a large tin can is three fourths filled with carbon bisulphide and 150 grams of paprika and 250 grams of flores sulphuris are added for every kilogram of carbon bisulphide. The clothes are hung up and the mixture is placed in tin trays and lighted. At the end of two hours, the lice as well as the eggs are destroyed. The residue remaining in the tin trays may be used as a deodorizing agent.

Bactericidal Power of Carbon Bisulphide, by Adalbert Fuchs.—The results obtained with carbon bisulphide as a remedy against lice have been so satisfactory that it was thought to be of value as a bactericide. Pieces of cloth soaked in bouillon cultures of typhoid and cholera and later allowed to dry were exposed to the fumes and after two hours the bacteriological examination was negative. Pieces of cloth impregnated with bouillon cultures of the same organisms and placed in Petri dishes were exposed for the same length of time and the examination was again negative. Fresh virulent cultures of the organisms, in both open and closed reagent bottles, were likewise exposed and with a single exception (one tube of cholera bacilli) the subsequent examination was negative. Slant agar cultures were also killed in the same length of time. From these investigations it would appear that this agent acts not only against lice but also against pathogenic bacteria which may be present in clothes.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

March 16, 1915.

Tetragenic Infection, by Fernand Trémolières and Pierre Loew.—In 174 cases in a hospital for contagious diseases, twenty-five patients were found to be suffering from infection by *Micrococcus tetragenus*. These could be classified into three groups. In the first or mild group, the condition was of gradual onset, characterized by moderate fever, frontal or postorbital headache, general fatigue, and copious sweating. The tongue was heavily coated at its centre, but red at the margins. Constipation was noted oftener than diarrhea. In eight to ten days the symptoms disappeared, but the patient remained languid for some time and was exposed to recurrence. In the severe group of cases, more numerous than the preceding, the symptoms often simulated typhoid or paratyphoid fever, with slow onset, lassitude, headache, sleeplessness, anorexia, and diarrhea. The temperature rose slowly to 39° or 40° C. Insomnia, lassitude, sweating, and diarrhea persisted throughout the disease, but the febrile curve was rather irregular, the stools generally greenish, the pulse rate only eighty or ninety, the blood pressure but slightly subnormal, the splenic area but little augmented, and rose spots absent. Sweating and pallor were pronounced features. In the third, or pleuropulmonary form symptoms of acute pleuropneumonia were added to those of septicemia, the sputum, however, remaining opaque and yellow. All the patients under observation recovered. The treatment included, according to indications, cool baths, cold packs of the chest, digitalin in small doses, epinephrine, camphorated oil, and electrargol intravenously. The diagnosis was based on blood culture and an agglutination test. Tetragenic infection appeared to be an epidemic and seasonal disease.

PRESSE MÉDICALE.*March 18, 1915.*

Painful Form of Wounds of the Median Nerve, by Pierre Marie and Athanassio Bénisty.—Beside the customary type of injury, a new form of injury to the median nerve, characterized especially by marked pain, is recognized in military practice. In this group of cases motor disturbances are relegated to the background, flexion of the fingers, thumb, and carpus being merely diminished in degree, not abolished. The diagnosis can be made from the patient's attitude on entering the hospital, the hand being, as a rule, carefully held up, wrapped in a moist cloth, in line with the axis of the forearm. The fingers, in turn, follow the direction of the metacarpals. The hand appears narrowed. Generally the fingers, especially the first three, present a slight, continuous tremor which becomes more marked as soon as the least muscular effort is made. On the back of the hands, including the fingers, the skin is white, thin, and smooth, though not slung and stretched as in so called glossy skin. On the palm, the skin is reddish, with more or less deep transverse folds. Local sweating is less marked than in the ordinary forms of median paralysis. Pain becomes intense ten to fifteen days after the injury, and is most marked in the tips of the fingers and the internal part of the thenar eminence. It is present at night, and is increased by dry heat, the least touch of any part of the body, and walking. Sensory disturbance is limited to tactile hypesthesia and pain hyperesthesia. The systolic blood pressure is high in these cases. The treatment consists of cold applications and operative liberation of the nerve—the latter procedure so far almost barren of results. Electricity and massage are contraindicated.

Collapse in Typhoid Fever, by C. Aubertin and H. Chabanier.—Persistent cardiac weakness and a tendency to collapse are observed in typhoid fever in military practice, in spite of the fact that true myocarditis is rare. With the form of collapse noted, a sudden drop in the temperature as well as in the blood pressure nearly always takes place, the pulse, however, being seemingly normal in rhythm and rate. In the cases of the authors, the prompt treatment applied, consisting of massive injections of camphorated oil, of sparteine, and of saline solution containing caffeine or epinephrine, together with alcohol rubs and hot packs, resulted in recovery in all instances. Prophylactically, epinephrine solution in doses of twenty drops a day and camphorated oil, eight to ten c. c. a day, were given. The former drug appeared to possess actual prophylactic value, though not superior to camphor and oil in actually existing collapse.

RIFORMA MEDICA.*April 17, 1915.*

Pancreatic Cyst, by L. Eustochio.—A case was diagnosed as splenic and hepatic cyst before operation. Urine was free from sugar except a trace on one occasion. Operation was done under spinal anesthesia. Korte distinguishes three kinds of pancreatic cysts, traumatic, inflammatory, sometimes extending from the upper abdominal region, and the apparently idiopathic, noticed only after reaching

a certain volume. These in turn may be retention cysts, proliferation cysts, or secondary to interstitial pancreatitis. Lazarus classifies them histologically into cystoma and cystoids or pseudocysts.

Oxygen and Carbon Dioxide in Blood of Uremic Patients, by L. Preti.—It has been determined that aqueous extract of liver tissue has the power of destroying uric acid in the presence of oxygen, but in the presence of carbon dioxide this uric acid is reconstructed. Preti made a series of experiments to determine whether or not in uricemia and in the uric acid diathesis, the bloodstream showed a diminution of its oxygen content and an increase of carbon dioxide. The results showed sixteen to twenty-three per cent. of oxygen in the blood of normal subjects while it was five to eighteen per cent. in uricacidemia. On the other hand, thirty-eight to forty-four per cent. carbon dioxide was found in normal patients; in uric acid patients it was fifty-one to seventy-six per cent. The question seems justified whether or not carbon dioxide may not be considered as a coefficient in uric acid morbid conditions. This theory fits in with the sedentary occupations of these patients, favoring an accumulation of carbon dioxide in the blood from muscular inactivity, depression of cardiac activity, etc.

Cardiac Sounds and Murmurs, by E. de Renzi.—Musical sounds are acoustic phenomena due to uniform and regular vibrations which correspond with certain laws, while murmurs are unequal, irregular, and apparently do not follow any law. Cardiac sounds are due to valvular vibration and closure, also to vibration of papillary muscles and of the walls of the larger bloodvessels. Bell-like musical cardiac sounds are found in arteriosclerosis, in neurasthenia and hysteria, in tuberculous patients with tachycardia, especially in those who are on the road to recovery.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.*April 17, 1915.*

Extirpation of the Larynx under Local Anesthesia, by F. Rueda.—Nineteen cases are reported by this method, where a twenty per cent. solution of cocaine was used. Rueda recommends the local anesthesia only in cases of intrinsic carcinoma, without glandular involvement, and insists that it should be attempted only by experienced operators. Sloughing sometimes occurs due probably to the powerful ischemic action of adrenaline and its local effect on the tissues when combined with cocaine.

BRITISH MEDICAL JOURNAL.*May 1, 1915.*

Further Remarks on the Mixed Typhoid-Paratyphoid A plus Paratyphoid B Vaccine, by Aldo Castellani.—The details of the preparation of this form of mixed vaccine are here briefly set forth, two methods being described. The one calls for the killing of the organisms by means of heat to 53° C. for one hour, the other for their destruction by means of saline solution to which half of one per cent. of phenol is added. In either case the vaccine is made to contain about 500 million typhoid and 250 million each of the two forms of paratyphoid organisms in each c. c. of the finished product. Of this two or three doses are given with an interval

of one week between each two doses. The first dose should be of five tenths to six tenths of one c. c., and the second and third of one c. c. each. The reaction produced by this vaccine is not greater than that produced by a simple vaccine of typhoid organisms alone. Castellani has proved by animal inoculations that such a mixed vaccine gives rise to the full degree of immunization against all three organisms, compared with the degree of immunity produced by the inoculation of either organism alone.

A Comparison between Some Physiological and Pathological Conditions, by Joseph Barcroft.—The results of oxygen want as brought about by great altitude, artificially rarefied atmosphere, or muscular exertion have been studied by physiologists. They may be briefly stated as leading to a flooding of the system with carbon dioxide. This is soon partly replaced by lactic acid with an actual reduction in the carbon dioxide tension. The presence of these two acids reduces the alkalinity of the blood and this leads to shortness of breath. This change in the reaction of the blood is largely dependent upon the function of the kidney, which excretes the bases while retaining the acids. This is a physiological protective response, the reduction in the carbon dioxide tension in the alveolar air leading to a relative increase in the oxygen partial pressure. Secondary to this the oxygen enters the blood more readily in the lungs and also leaves it more readily in the tissues. This physiological adaptation has a direct counterpart in certain pathological states, namely, in certain types of dyspnea. Lewis and his associates have recently described a number of cases of dyspnea associated with cardiac and renal disease in which the true explanation of the shortness of breath seems to be a want of oxygen supply to the renal cells. This leads the kidneys to the excretion of the bases and the retention of acid bodies, exactly as in the case of the physiological response already outlined. Experiments undertaken to determine the nature of the retained acids have failed to discover either betaoxybutyric or lactic acids, and the precise nature of these acid substances still remains unknown. Much the same condition of oxygen want with resulting increase in hydrogen ion concentration in the blood together with dyspnea is encountered in pneumonia. It is therefore evident from this comparison of physiological and pathological conditions that there is a type of dyspnea which can truly be denoted, renal dyspnea, although in such cases there may be no anatomical lesion of the kidneys.

Wound Infections, by A. E. Wright.—In his concluding paper Wright deals with the value and limitations of vaccine therapy in the treatment of wounds. The prophylactic use of vaccines is theoretically the most satisfactory method for their employment; it may be stated that theory is supported by the results of prophylactic vaccination for smallpox, typhoid, cholera, plague, etc. Unfortunately this procedure has not been adopted as a matter of routine so that we have no means of actually establishing its value in connection with wound infections. Next in order of results produced stands the use of vaccines in fresh infections with localized bacteria invasions. Here the imme-

diante results are truly dramatic and almost uniformly good. The use of vaccines is only of somewhat less importance in the case of well drained infected wounds. But when it comes to their use in wounds which are poorly drained, or such as are not drained at all, or in cases in which septicemia has supervened the results are scarcely encouraging, and the proper dose is a matter of the greatest difficulty. An intermediate class of conditions seems to be encountered in those cases of heavily infected wounds in which saprophytes are abundant. In such cases no striking effects are obtained from the vaccines, but it seems quite probable that they may exert at least a restraining effect on the organisms in the deeper parts of the wound tissues and thus materially aid the other methods of treatment previously outlined. (See the JOURNAL for May 8th and May 15th.)

LANCET.

May 1, 1915.

Ileus duplex, by W. Sampson Handley.—This name has been given to the condition described in order to differentiate from the ordinary type of ileus encountered in peritonitis or after surgical operations. The condition occurs only as a result of pelvic peritonitis, and its duplex nature consists in the occurrence of a paralytic ileus involving the lower portion of the small intestine which lies within the true pelvis and the portion of the large intestine below the middle of the sigmoid colon, which also falls within the true pelvis. A recognition of the dual nature of this form of ileus goes a long way toward the reduction of its mortality. Handley cites his results in the operative treatment of cases of this type before he appreciated the duality of the lesion. In this group, in which ileocecostomy alone was performed, four of the six patients died. After the recognition of the nature of the lesions he performed ileocolostomy combined with cecostomy and had three recoveries and no deaths.

Significance of Arneth Counts in West Africa, by J. W. Scott Macfie.—The observations of others are cited to the effect that in white races living in the tropics there is a decided tendency for the Arneth count to be displaced to the left, and this is considered as an indication of a reduction in the resistance of the body to infection. The present remarks deal with the effect of malarial infection on the Arneth blood picture, and show that in this condition the shift to the left may be extreme. This observation seems to support the contention of Breinl and Priestley to the effect that the Arneth picture is an index of the functional activity of the leucopoietic system, a marked displacement to the left indicating morbid activity of these tissues. Such certainly is true in malaria.

CHINA MEDICAL JOURNAL.

March, 1915.

Tropical Febrile Splenomegaly and Its Surgical Treatment, by J. L. Maxwell.—This disease, which is met with in Formosa, China, Egypt, and other tropical regions, is characterized by progressive enlargement of the spleen and fever; it is different, though distinguished with difficulty, from other forms of splenomegaly in the tropics. It commences with enlargement of the spleen, soon

followed by enlargement of the liver. In a certain proportion of cases possibly in all which remain untreated—contraction of the liver, with ascites, results. The condition of the average patient when he comes to the hospital is somewhat as follows: General ill health; earthy complexion without definite jaundice, possibly some coloring of the conjunctiva; muscles wasted and flabby; skin dry and inelastic. Patient generally denies having fever, but is often found to have a temperature of 100° F., or over. This loss of febrile sense is noteworthy because it is extremely common, and must be borne in mind when considering the history of a patient, who states that his illness has been afebrile after an initial attack of ague. The chest is wasted, and in strong contrast to the distended abdomen; on examination, both the spleen and liver are greatly enlarged. The legs are slightly edematous. Epistaxis is common, but hematemesis rare. The urine is quite free from albumin, and does not give the tests for bile. Dysenteric symptoms (probably only a complication) are relatively common, and the stools contain ancylostoma eggs in many cases. The blood picture shows marked reduction of erythrocytes, while the leucocytes are variable—never increased to any extent, and often decidedly reduced in number. Mononuclear cells are relatively numerous. In the early stages, the disease may possibly be amenable to medical treatment; it is certainly curable by splenectomy. When contraction of the liver with ascites has occurred, the prognosis after operation is very doubtful; but without operation, the disease is always fatal. In suitable cases splenectomy, if careful attention is paid to detail, is not very dangerous; the result, if successful, is well worth the risk. There is urgent need for systematic investigation into the etiology, diagnosis, and prognosis of this disease.

Sandflies (Phlebotomus) in China, and Their Relation to Disease, by R. A. Bolt.—Sandflies make their appearance at the beginning of summer in Peking and vicinity, and remain throughout the hot months. Four years ago, when the author was at Petaiho, a seaside resort, the experience of his own family, and the untoward symptoms which seemed to be associated with the bites of the flies in a number of instances, led him finally to the belief that there was more than a chance coincidence between the bites and the unpleasant symptoms which followed. A large number of infants were bitten so badly as to make their condition bear a superficial resemblance to measles. The children not only suffered intensely from the local irritation of the bites, but many of them exhibited a sudden short febrile reaction, injected conjunctivæ, and great restlessness, while some had diarrhea. In adults similar symptoms, together with severe frontal headache, were noted. Occasionally a long period of depression followed the attack, but all the patients recovered. At that time the symptoms observed were attributed to other causes, such as the heat, but his observations since have convinced him that this peculiar symptom complex after sandfly bites was really an instance of so called three days' fever, now better classified as phlebotomus or papataci fever.

BOSTON MEDICAL AND SURGICAL JOURNAL.

May 6, 1915.

Epididymotomy for Acute Epididymitis as an Outpatient Procedure, by A. H. Crosbie and A. Riley.—When a patient with acute epididymitis is unable to enter a hospital for operation, he must in many cases either do without an operation or have it performed under local anesthesia as an ambulant patient, and the writers have had excellent results from the latter procedure. Local anesthesia is produced by the subcutaneous injection of twenty to thirty c. c. of a one per cent. solution of novocaine to which has been added from three to six drops of adrenaline solution, one in 1,000. A lateral incision is made into the tunica vaginalis near the epididymis, through which the testicle and epididymis are brought out. The epididymis is then carefully examined. It is hard and indurated where the inflammation is worst and occasionally minute abscesses may be seen as yellowish white dots. It is very rare that there is a single abscess large enough to give definite fluctuation. Multiple punctures are made with a tenotome deeply into the indurated area whether there is visible pus or not. Frequently a drop of thick yellow pus wells up, and when a pus cavity is found the incision is enlarged a little to allow free drainage. When an artery is struck, the bleeding is stopped by a fine catgut stitch. The testicle and epididymis are then washed off with warm salt solution, a drain of gauze or rubber tissue is placed lengthwise along the epididymis, brought out at the lower end of the incision and the testicle is pushed back into the tunica. The wound is closed loosely with silkworm gut sutures passed through all the layers so that any hydrocele fluid may work out. A large dressing is applied and secured with a T bandage, the patient is told to go home, take a cathartic, and remain in bed for a couple of days if possible, but in some cases the patients have not quit work at all. The next day he is apt to have a little fever, but usually without much pain, and at the end of thirty-six hours the temperature becomes and remains normal. The advantages maintained are: This operation invariably gives immediate and permanent relief from pain; there are no recurrences unless there is a fresh infection; the course of both the epididymitis and urethritis is shortened; the patients are less likely to be sterile; the treatment of the urethritis can be begun much earlier; the operation can be done safely and successfully in an outpatient clinic.

Myxedema Simulating Nephritis, by William Duncan Reid.—The patient, a woman aged sixty-nine years, was supposed to have had chronic nephritis for years on account of a marked edema and a small amount of albumin in her urine. This diagnosis had been made ten years before and had been confirmed by several physicians who had warned the family of impending uremia. Among the points that led to the correct diagnosis were the absence of cardiac hypertrophy, of increased blood pressure, of casts with fat, blood or cells on them, and of nephritic changes in the fundus, and the presence of trophic changes in the hair, teeth, skin and nails, generalized edema with but slight pitting,

erythematous patches on the cheeks, hebetude, deafness, changed voice, chilliness, and absence of perspiration. The history of a severe hemorrhage after the extraction of a tooth also was suggestive of thyroid deficiency. The improvement under thyroid therapy was remarkable and conclusive as to the nature of the disease, although the patient died from an intercurrent bronchopneumonia.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

May 8, 1915.

Nutrition and Growth, by L. B. Mendel.—From recent investigations on this subject fruitful speculation and beneficial applications are likely to result in the domain of practical medicine. The popularity of the milk fats may be revived from a new point of view. It may be stated that Niemann has lately advocated the use of washed butter in the dietary of ill nourished infants, and reported signal success. The merits of codliver oil appear in a new light, and the use of egg yolk emulsion in the case of growing individuals finds justification. The merits of milk, or fractions of milk such as whey, etc., in the nutrition of the young are emphasized, and the contrast of skimmed or cream free milk with whole milk is brought into new relations. Growth is more than a mere energy problem; insufficiency of food and individual foodstuffs may be contrasted with specific deficiencies. The possible potency of plant products remains to be ascertained. The question of unheated and heated milk, the problem of the preservation of canned foods by heat, may be concerned with the stability of physical agents. Perhaps in the refinement of modern food preparation, we are dealing with an induced deficiency of actually known substances; one readily thinks of the possible role of traces of iodine or silicon or manganese hitherto unrecognized.

Tetanus and Antitetanic Serum, by E. E. Irons.—Within the past two years new evidence as to the efficacy of antitetanic serum has been obtained from animal experiment and from reliable hospital statistics. In 1914, fourteen cases were treated at the Cook County Hospital, Chicago, by means of combined intravenous and intraspinal injection of massive doses, and while conclusions based on so small a number are necessarily open to question, the fact that a previous mortality of 81.44 per cent. in all cases, and of 78.6 per cent. in antitoxin cases, has been reduced to slightly over fifty per cent., when the antitoxin was used with due regard to the pathology of the disease, is entitled to some weight. The total antitoxin given, to get the maximum effect as soon as possible, was from 17,000 to 35,000 units, with an average of 23,500 units in a case. The effect of sepsis developing in lacerated wounds coincident with tetanus deserves more consideration than it has thus far received in estimating the successes and failures of antitetanic serum. Again, in two of the cases death occurred after the patients were apparently convalescing; but although these deaths are chargeable to tetanus as the primary cause, certain complications which were present should be taken into account in judging the power of the serum to modify the course of tetanus.

Nontuberculous Pulmonary Suppurations; Their Medical and Surgical Relations, by M.

Manges.—The object of this paper is to make a plea that the general practitioner should seriously think of the surgical possibilities of all cases of this kind. The problems which must be solved are often extremely difficult, and the physician and surgeon should work in cooperation. Pulmonary surgery will always remain in the hands of the advanced surgeon, but even with his skill the prognosis will largely depend on these operations being a matter of choice, rather than of last resort. The surgeon is right in urging that he be given a suitable opportunity to operate on such patients as early as possible. To recognize this class of cases, physicians should be more progressive in their methods of diagnosis; they must not lay so much stress on their stethoscopes and fingers. Not a few of these patients are to be found in tuberculosis sanatoriums under faulty diagnosis. The fluoroscope and roentgenograph must be used in every case. Next in importance to the x ray comes bronchoscopy, and when the two are combined the chance of error is very much reduced. Indeed, no case should be submitted to a radical operation unless the bronchoscope has been employed. In addition, physicians should broaden their views on the pathology of pulmonary suppuration. Increasing experience at operations and necropsies shows it to be essential that the lung should be considered as a whole. It is erroneous to regard the parenchyma, bronchi, and pleura as separate parts; they are all closely related in the etiology and progressive development of the lesions, and this relation is frequently overlooked. In all cases of pulmonary suppuration in which the etiology is at all obscure, the possibility of syphilis must always be thought of. Again, it must not be forgotten that pulmonary suppuration may be associated with tuberculosis, with cases in which lung abscesses occur which are independent of the tuberculous process.

Treatment of Pellagra by Autoserotherapy, by E. E. Palmer and W. L. Secor.—Seven consecutive and unselected cases have been treated with uniform success. A piece of cantharides plaster one and a half inch square, smeared with olive oil, is placed on the patient's chest at bedtime, and in the morning the plaster is lifted at an upper corner and one c. c. of serum is withdrawn from the resulting blister with a hypodermic syringe and injected into the arm. There should be no visible reaction, and the injection is repeated once a week.

MEDICAL RECORD

May 8, 1915.

Modern Phases and Treatment of Basedow's Disease, by O. Hensel.—For practical purposes we may include in the disease: 1. Hyperthyroidism or the *formes frustes*; 2. Basedow's disease proper; 3. Basedow's disease with pronounced thymic symptoms. By hyperthyroidism is really meant dysthyroidism, since Klose has shown that the expressed juice of the Basedow thyroid, injected intravenously in small amounts into dogs, will cause pronounced symptoms with a change in the blood picture suggesting Basedow's disease and similar to an acute iodide poisoning; while the juice of a normal thyroid, even in much larger amounts, will usually give rise to no symptoms. Clinically, in dysthyroidism,

the only cardinal sign generally present is the enlarged and vascular thyroid, but even this may not be very evident if the enlargement is chiefly downward. The characteristic feature, however, is that usually one or more of the minor symptoms (such, for instance, as persistent diarrhea) is present, and often so marked as to constitute the main complaint. It is not difficult to see, therefore, why the real condition is often not recognized. According to modern research, the lymphocytosis of Basedow's disease is caused, not by the thyroid, but by thymus intoxication, and a return of the blood picture to normal occurs only after thymectomy. In this affection the chief interest today relates to the participation of the thymus in the pathogenesis. The influence of this upon the thyroid would appear to be both reciprocal and antagonistic. All cases of dysthyroidism and Basedow's disease, except the advanced ones, should be treated medically at first. More can usually be expected from sodium phosphate and glycerophosphate than from the older drugs such as quinine and ergot. Nerve sedatives are almost always required, and for the milder cases bromides and the modern valerian preparations will suffice, while in the severer ones resort will often have to be made to opiates. Preference should be given to the less habit forming ones, as codeine and dionine, but often the same results can be accomplished with veronal and medinal. The most recent veronal derivative, luminal, often exerts a markedly beneficial action upon the tremor, nervous excitement, and abnormal psychic state. Dietetic and hygienic measures are naturally of great value. Patients not infrequently get well on a lactovegetable diet and a rest cure, with forced feeding, and hydrotherapy, and only such drugs as the symptoms may require. It cannot be too strongly emphasized that every case treated medically should be under constant control, for the result can never be foretold. The x ray may be used after a conservative operation such as ligation of the vessels, or in place of operation; though many surgeons hold that a subsequent operation will then be more difficult. After medical treatment, the x rays, and ligation have failed, it is probably advisable to remove as much of both the thyroid and the thymus as possible.

Treatment of Epilepsy from Metabolic Disturbances in Adolescence, by T. A. Williams.—As the toxins responsible for the patient's ill health occur in consequence of an incapacity to metabolize an amount of protein which the average individual can take with impunity, the most important feature of correct management is limitation of the protein intake; it should not exceed the patient's maximum. No physiological inconvenience is caused by this limitation. Energizing material must not be insufficient, and limitation of protein must be compensated by increase of carbohydrates and fats. These the patient may generally take freely; experience showing that, in the absence of diabetes or pituitary disease, the appetite does not exceed body tolerance for such substances. The third important feature is the giving of the vegetable salts, in the form of fruits and vegetables, to furnish inert bulk, by fibre and cellulose, in an amount amply sufficient for free activity of the secretions. These points are embodied in the model diet given to each patient with

certain modifications which the case may require. It is very unwise to give to patients, and especially young persons, a rigid or lengthy dietary, for it will not be followed. The important point is that the patient should grasp the principles by which his dietary should be regulated by himself. As these are very simple, he can then apply them to any *menu* placed before him, and thus with very little difficulty choose what will be beneficial. Included in the management are suitable baths and muscular exercise to favor oxidation.

AMERICAN JOURNAL OF ORTHOPEDIC SURGERY.

April, 1915.

Contribution for Study of a Typical Disease of the Upper End of the Femur (Perthes Disease), by Francesco Delitala.—The writer compares signs, symptoms, diagnosis, etc., of his own and other cases published of osteochondritis of the hip and presents the following points of interest: A rare disease occurring in children from the age of three to ten years. Signs: Slight shortening of limb, atrophy of joint, greater trochanter higher than normal, limitation of abduction and claudication. X ray findings show a poor development of the cephalic neck, and perhaps some alteration of acetabulum. There is no special treatment advised.

Tuberculosis of the Knee Joint in Adults: Prognosis and Treatment, by Mark H. Rogers.—The disease most frequently begins as a synovitis; the author favors an exploratory operation as a diagnostic aid; and holds the view that early excision of the joint is preferable to conservative treatment.

Tuberculosis of the Hip: Analysis of Twenty-five Selected Cases, by Nathaniel Allison.—The author is inclined to believe that an ankylosed tuberculous hip joint is not the best end result procurable, but aims at a cure with more or less motion. He holds to the views of Doctor Bradford in the use of traction and abduction and uses his splint for these. In all of the cases treated in this manner he obtains no bony ankylosis.

Management of the Convalescent Stage of Hip Disease, by George B. Packard.—The author is convinced that many cases of tuberculous coxitis are discharged before absolutely cured and that careful supervision with the taking of repeated x ray photographs should be pursued during this stage.

Pott's Paraplegia with Complete Paralysis Lasting for Five Years, with Recovery after Treatment, by Joel E. Goldthwait.—After five years of paraplegia, fairly good recovery was obtained by the ordinary bed and hyperextension treatment, showing that but little damage was done to the spinal cord.

Spontaneous Dislocation of the Hip, by John Ridlon.—The author points out that although there is always some congenital defect in congenital dislocation of the hip, still there are many cases which do not become dislocated until the patients begin to walk or have walked for some time, or have been subjected to some injury or the like. Hence he prefers to call these cases spontaneous dislocation of the hip.

Joint Syphilis in Children, by Archer O'Reilly.—From a one year's study of all joint diseases in the orthopedic clinic of the St. Louis Children's Hospital, the writer finds that syphilis is far more prevalent than is supposed. He impresses the importance of a close differential study and a Wassermann test in all cases.

A Hitherto Undescribed Dystrophy, Probably of Syphilitic Origin, of the Joints of the Lower Extremities, by Charles F. Eikenbary.—Presentation of three interesting cases, occurring in the same family, showing a dystrophy of knees and ankles, which involves the adjacent bony structures to a considerable extent; and the lesions of which resemble those of a Charcot joint. Although all Wassermann tests were negative, the author still believes that the condition is a late evidence of syphilis.

The Treatment of Rheumatoid Arthritis of the Hypertrophic Type, by John L. Porter.—In this particular type of case, the author injects a two per cent. olive oil-formalin solution into the joint, and then fixes the part by a cast for several weeks and obtains good results.

Importance of Vascular Conditions in Orthopedic Cases, by Herman W. Marshall.—The writer believes that the orthopedic surgeon should always begin his treatment by using, in addition to his own measures, the ordinary eliminative and tonic treatment, so as to improve the general vascular state, thereby frequently relieving symptoms.

NEW ORLEANS MEDICAL AND SURGICAL JOURNAL.

May, 1915.

Use and Abuse of Forceps, by W. D. Phillips.—To decide whether to use forceps, or allow a further attempt at spontaneous delivery, frequently taxes to the utmost the judgment of the physician, because he has to consider, first, the life of the mother and child, and, second, the future welfare of both. In order that forceps may be used properly, it is necessary that the individual case should be thoroughly studied; it cannot be said in a general way in what classes of cases the forceps should and should not be employed. The most frequent abuse is in the high application, when the head is at or above the brim of the pelvis; resulting, if not in actual loss of life, in serious and extensive injuries to mother or child, and to both. The next most common abuse, is in cases of contracted pelvis. In the extreme instances of this, the condition is so marked that the diagnosis does not even require pelvimetry, and it is at once recognized that the case calls for Cæsarean section. It is in the milder degrees of contraction, the so called borderline cases, however, that the abuse is so apt to occur. In doubtful cases estimation of the relative size of the pelvis and the fetal head, as advised by Kerr and Mueller, will assist very much in determining the possibility of spontaneous or safe forceps delivery; failure to cause the head to engage will usually indicate Cæsarean section. Probably the condition most often calling for forceps is uterine inertia, frequently associated with resistant perineum in primiparæ. In cases of this kind, artificial rupture of the membranes, or the use of pituitrin, will sometimes remove the indication for the use of forceps. Another condition often necessitating the application

of forceps is an occipitoposterior vertex presentation. The fetal heart is also a good guide; should the rate exceed 160 or fall below 100 a minute, the labor should be terminated at once. Severe convulsive movements of the child, signifying a lack of sufficient oxygen, are likewise an indication for this.

Postural Disturbances, by J. T. O'Ferrall.—When the posture is pathological, or, in other words, the weight bearing lines are distorted or the statics abnormal, the case will present one of several definite trains of symptoms. The two types are the congenital and the acquired; the latter is the more easily dealt with, as the natural supports are present. Among the causes are habit, general debility, and occupation. Common causes in women are ill fitting corsets and absence of corsets. The treatment is comparatively simple, and depends largely upon the patient. It consists in correcting the faulty attitude by restoring the normal centre of gravity, and this is most satisfactorily accomplished by properly directed exercise, the purpose of which is to tone up the whole muscular system, especially the anterior abdominal muscles, the chest walls and back. The patient should also assume certain positions tending to overcome the defective adjustment of the viscera. In addition to these exercises, many cases require temporary artificial supports, such as anteroposterio pads, spring back braces, belts, and suitable corsets. Change of occupation is often of great service. In certain very rare instances, especially where there is marked colonic stasis, operative interference may be demanded.

Proceedings of Societies

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

One Hundred and Ninth Annual Meeting, Held at Buffalo, April 27, 28, and 29 1915.

The President, Dr. GROVER W. WENDE, of Buffalo, in the Chair.

Intestinal Stasis.—Dr. ALLEN A. JONES, of Buffalo, stated that acute sepsis resulted only when intestinal obstruction was positive and was brought about by a pathological state causing blocking or constriction, or by a complete intestinal paralysis from some interference with the neuromuscular function of the bowel. It might occur either in the small or in the large intestine. Acute stasis might result from obstruction in the small intestine, or might be due to intussusception, hernia, volvulus, adhesions or kinks, foreign bodies, ulcers and cicatrices, peritonitis, general or local, or pressure upon the intestine by tumor or by another organ. The ileocecal region was especially apt to be the seat of some of these conditions, as, for instance, appendicitis, bands, adhesions and kinks, or intussusception.

Viewed from the standpoint of the internist, the question—How did enteroptosis with its common accompaniment, real and persistent chronic constipation, and its various complicating or etiological and pathological conditions, affect or deplete health?—might be answered in part in this way:

1. By its toxic effects. 2. By interfering with the splanchnic circulation. 3. By exciting unhealthy conditions of the colonic mucosa. 4. By its possible effect in causing appendicitis. 5. By its possible effect in causing pelvic displacement. 6. By its drag on the mesentery causing backache and misery. 7. By its effects upon the mind, the vasomotor circulation, and the whole nervous system. 8. By its induction of premature old age because of its interference with the nutrition of the heart, the arteries, and body musculature.

Intestinal Prolapse and Adhesions.—Dr. HENRY W. BETTMANN, of Cincinnati, stated that at the beginning of the present century internists had very generally agreed on the main features connected with the etiology, the symptomatology, the prophylaxis, and the treatment of gastroenteroptosis. These conclusions might be summarized as follows: 1. Etiology. A certain hereditary predisposition existed. Constitutional debility and maldevelopment played important roles. Pregnancy, emaciation, and improper dress were often the deciding influences. 2. Symptomatology. The early symptoms were those of atonic dyspepsia, although the prolapsed viscera might function perfectly and all the symptoms be absent. There was nothing at all characteristic about the early symptoms. In more advanced cases disturbances of motor function, headache, constipation, dragging, backache, and emaciation were common. The third stage was reached when the nervous system yielded and a state of neurasthenia ensued. 3. Prophylaxis. Especial attention must be paid to neurotic children, particularly to those presenting the habitus enteropticus. Physical exercises and correct gymnastics were exceedingly valuable. Dress reform, the care of convalescents, especially when emaciation was present, and the proper attention to the abdominal walls after childbirth, were all of the highest importance. 4. Treatment. General hygienic measures combined with an appropriate diet were sufficient in many cases. Many patients were made permanently neurotic by having their attention directed too persistently to the position of their abdominal organs. A well fitting abdominal bandage was exceedingly helpful in many cases. It was certainly not indicated in every case. In the young, corrective gymnastics were to be preferred. Massage was often helpful.

From 1900 to 1915, the second period in the history of gastroenteroptosis, various influences had tended to modify materially the views of this subject. These influences might be grouped under the following heads: The x ray; the theory of colon stasis and alimentary toxemia; the theory of ileocecal obstruction; orthopedic considerations; and the entrance of surgery into the field. The summed up clinical picture, which included the presumptive diagnosis, the gravity of the symptoms, the willingness or ability of the patient to endure them, the results of medical treatment, the problematical results of surgical intervention, all of these factors together interpreted by an experienced and trained observer must finally make the decision.

Organic Obstruction of the Ileum as a Cause of Gastric Disturbance.—Dr. GRAHAM CHAMBERS, of Toronto, Canada, pointed out that the close ana-

tomical and physiological relationship between the stomach and the small intestine had an important bearing on the etiology of ileal stasis, for one should expect that both viscera would be affected alike by nervous disturbances. It was recognized that gastric atony was very common and due to a great variety of causes, of which worry and anxiety over business difficulties and asthenia following infectious diseases and other constitutional disorders were the most important. It was probable that similar agents produced atony of the small intestine. This was the view held by Lane and Jordan. That such was the case, he presented the following clinical evidence: 1. In a considerable proportion of cases of ileal stasis there was a history of marked improvement during periods when the patient had been on a vacation. 2. A large proportion of cases of ileal stasis could be cured without surgical procedure. 3. Slight adhesions resulting from surgical operation and the disturbance of peristalsis brought about by lateral anastomosis did not often give rise to suggestive symptoms. 4. Intestinal stasis was more common in persons who led sedentary lives with much brain work than in those who lived in the open air and took a great deal of physical exercise.

In studying the genesis of gastric disturbance in organic obstruction of the ileum, it was well to remember that obstruction of any part of the stomach or intestine tended to produce increased peristaltic tonus of the parts proximal to the obstruction. In organic obstruction of the ileum one should expect to find signs and symptoms of increased tonus and peristalsis of the stomach and small intestines proximal to the seat of obstruction. This was generally true in all cases of uncomplicated organic obstruction of the ileum. The characteristics of the pain in the region of the stomach in ileal stasis due to organic obstruction were variable. This depended partly on the degree of stasis and partly on the nervous state of the patient. In some cases the time of appearing after eating and the intensity in nature resembled similar characters of the pain observed in gastric or duodenal ulcer. This feature often rendered it difficult to determine whether the particular state was one of intestinal stasis alone or intestinal stasis associated with peptic ulcer. Symptoms referred to the stomach in ileal stasis of organic origin were determined to a considerable extent by the associated conditions or complications. Some of the latter were diseases of the stomach itself, such as peptic ulcer; others were diseases of the adjacent organs, such as duodenal ulcers and gallstones, which were prone to produce gastric symptoms; and others again were disturbances of the nervous system, such as neurasthenia and hysteria. Any one of these might be characterized by a group of gastric symptoms. Before the complaints of the patient were ascribed to anatomical changes, they should make a thorough examination of all the organs of the body. They should remember that an asthenic state was very common, and that when present it frequently gave rise directly to gastric symptoms as well as ileal stasis; also that suggestion was frequently responsible for the symptoms of the patient.

Dr. L. T. LE WALD, of New York, said there were some cases that must be treated for intestinal

stasis, even though it involved a serious operation. If there was a well defined kink, the patient should be operated on and cured. However, if a surgeon should operate on a movable kidney simply because it was movable, he would not necessarily cure that particular patient. The trouble might be elsewhere. He had known of at least two cases where the colon was not the seat of the trouble. In one case in which an ileosigmoidostomy was done, the stomach was not examined at all, but while the patient was relieved temporarily of the gastric trouble, x ray examination disclosed a serious obstruction at the outlet of the stomach. He believed a large majority of these cases had a congenital element rather than an acquired one.

Dr. ROBERT T. MORRIS, of New York, quoted Doctor Jones as saying that most of these patients suffering from chronic intestinal stasis were amenable to medical treatment. He thought this was quite right. There was too much surgery, but also too little surgery. Half of these patients came under the observation of internists who wanted to give them something. If the diagnosis in these cases was made early and proper medical treatment resorted to promptly, very little surgery would be required.

Dr. JAMES T. CASE, of Battle Creek, Michigan, emphasized the point that carcinoma of the colon was found particularly in two places, the pelvic colon and the cecum. He had found stasis in the same part of the colon, the pelvic colon and cecum, and sometimes in the right half of the colon.

The Infected Colon and Its Surgical Therapy.—Dr. JOHN W. DRAPER and Dr. JEROME M. LYNCH, of New York, read this paper, which will appear in the JOURNAL.

Dr. MARTIN B. TINKER, of Ithaca, said there were a number of surgeons who had taken up the less radical operations very similar in character to those described by Doctor Draper. In the *Journal A. M. A.* a short time ago, there appeared a paper by Dr. William J. Mayo, in which he advocated a very similar procedure and reported some satisfactory results. He believed that this less radical procedure had a limited field of usefulness. With regard to the severe infectious cases brought up by Doctor Draper, almost every surgeon of large experience had seen some of the serious cases and they all knew how hopeless hemorrhagic colitis cases had been considered. It was known that a large proportion of cases in which multiple polyposis was followed by degeneration into cancer and death. He recalled assisting Dr. W. W. Keen in doing a Kraske operation, resecting a large segment of the lower bowel to get rid of this condition. It was a very radical measure. As he understood it, Doctor Lynch and Doctor Draper were proposing ileostomy as an alternative in these cases. As far as his observation went in many of these cases of colon infection, medical measures had been futile, and very little had been suggested in a surgical way. Ileostomy was a simple procedure, and he felt sure surgeons would be inclined to try it in these desperate cases.

Dr. JEROME M. LYNCH, of New York, stated that the early diagnosis of cancer was extremely difficult in the hands of the best men. Doctor Draper had spoken of anemia, loss of blood, constipa-

tion, diarrhea, mucus and blood in the stools, and a number of other conditions that gave these similar symptoms. Let them take, for instance, hemorrhagic colitis, simple intussusception of the bowel, amebic dysentery; they should be exceedingly careful to eliminate these conditions gradually. The x ray unfortunately, except in late cases, was not valuable. In the early diagnosis of cancer the x ray was not helpful. That was his experience. The diagnosis between diverticulitis and cancer was almost impossible in some cases. Recently he reported a case before the New York Pathological Society in which a man had both diverticulitis and cancer. The cancer evidently was the result of the diverticulitis. He had both an acute and inflammatory condition, as well as a malignant condition at the same time. Indigestion was a very early symptom of cancer of the colon.

Early Recognition of Cancer of the Stomach.—Dr. JULIUS FRIEDENWALD, of Baltimore, stated that unless the diagnosis of cancer was made clearly, surgical intervention could only be in the nature of relief and not of cure. The earlier the stage of the growth, the less positive were its manifestations. Even though the disease assumed considerable proportions, many of the important symptoms might be absent, so that at this stage a correct diagnosis might be impossible. Patients developing this disease were not, as a rule, chronic dyspeptics. The most important symptoms were anorexia, vomiting, pain, hematemesis, melena, and the presence of occult blood in the stools; dysphagia, loss of flesh, the presence of a palpable tumor, dilatation of the stomach, ascites and edema of the extremities; certain röntgenological findings, serodiagnosis by the Abderhalden method, etc. Vomiting was of frequent occurrence in cancer. Pain was present in 93.1 per cent. of 1,000 cases, and extended more or less over the entire abdomen. Hematemesis occurred in twenty-two per cent. of cases; in eighty-seven per cent. the hemorrhages were multiple, and in ten single. Melena or tar colored stools appeared in eighteen per cent. of the cases. Occult blood in the stools was present in 64.2 per cent. Dysphagia existed in six per cent. Loss of flesh was a sign of considerable value and occurred in ninety-eight per cent., the loss varying from five to seventy-eight pounds. In only thirty per cent. could a mass be palpated, six months after the appearance of symptoms. Dilatation of the stomach occurred in forty per cent., and this condition, when present early, was of great diagnostic value. Ascites and edema of the extremities appeared in twenty-one per cent. of cases.

What Stomach Symptoms Justify Surgical Intervention?—Dr. MARTIN B. TINKER, of Ithaca, said a reduction of the present high death rate from stomach cancer and stomach or duodenal ulcer could be accomplished only when agreement was reached between internists and surgeons as to the indications for operation. Their first effort should be to eliminate nonsurgical conditions. A reasonably careful routine examination usually sufficed for most cases presenting stomach symptoms which did not justify surgical intervention. There was a general agreement among men of experience as to the importance of the clinical history, particularly the

early history of these cases. Frequently at the onset of the trouble the symptoms were clear and distinctive, while later the clinical picture was obscure because of the symptoms resulting from adhesions, extensive involvement of surrounding organs, and impairment of general health. Common to all the chronic dyspeptic trouble, such as gallstones, appendicitis, and various intraabdominal forms of cancer, were complaints of pain, vomiting, gas and distention, burning sensations, and eructation of sour or bitter material. In a number of these cases it might be possible to get the early history of pain localized in the region of the appendix or under the right costal border, more or less distinctive of appendix or bile tract involvement, while in the stomach or duodenum cases the pain was more commonly situated in the epigastrium. Pain was perhaps the earliest and most persistent of symptoms. Examination of the abdomen early in the disease might give valuable information. Tenderness on pressure over the ulcer, usually in the epigastrium, in the vicinity of the pylorus, when present was very suggestive, although not nearly as constant as were the points of tenderness and pain over the appendix and gallbladder. Later on, visible peristalsis might show the beginning of obstruction from developing cancer or adhesions about chronic ulcer. The cases of cancer, in which definite tumor was present, Czerny many years ago pronounced inoperable and this still held good in the great majority of cases, but some small movable tumors were readily operable and occasionally a mass of adhesions about chronic ulcer might be mistaken for cancer and such justified the possibility of mistakes. In doubtful cases an exploration should be made. The general appearance was also suggestive.

Although there was general agreement that they could not depend upon gastric content analysis for either a positive or negative diagnosis, it seemed to deserve a place among the methods of investigation. There was a constantly growing belief in the x ray study of the stomach among all who were interested in this work. The x ray gave accurate information regarding the size, shape, and position of the stomach, the activity of peristalsis, and time of emptying. In a recent series of twenty-nine personal cases in which symptoms referred to the stomach were the most prominent features, the following conditions were found: Cancer of the stomach, 4; ulcer of the stomach, 2; cancer of the duodenum, third part, 1; ulcer of the duodenum, 9; perforating ulcer of the duodenum, 1; cancer of the transverse colon, near stomach, 2; chronic inflammation of the bile tract, 3; chronic appendicitis, 3; tuberculosis of the cecum, 1; movable kidney, 3. In one of the movable kidney cases the displaced kidney was adherent directly over the duodenum.

While it might be impossible to arrive at a positive diagnosis in many of these cases, it was almost always possible to say that serious trouble was present inside the abdomen, and that the symptoms were of sufficient gravity to justify surgical intervention. Almost always it would be possible to determine with some degree of certainty whether the stomach and duodenum were at fault or whether the stomach symptoms were caused by lesions elsewhere in the abdomen. All modern means of diag-

nosis should be employed and the lesion located as definitely as possible, so that in the majority of cases the operation was not really exploratory, but they might be able to attack the lesion causing the symptoms, without undue handling of the intestines or manipulation inside the abdominal cavity.

Dr. L. T. LE WALD, of New York, stated that there was one important point in the diagnosis of gastric and duodenal ulcer which should be considered and that was the question of syphilitic lesions. They had had eight cases at St. Luke's Hospital in the last two years which ordinarily would have been considered ulcer or carcinoma. Doctor Meyer had reported a case before the New York Surgical Society in which he had resected for a carcinoma at the pyloric end of the stomach. The patient succumbed to the operation. Microscopic examination showed it not to be carcinoma, but a syphilitic lesion of the stomach. In another case a fatal hemorrhage of the stomach ensued. The case was supposed to be one of ulcer, but it turned out to be on microscopic examination a syphilitic infiltration of the stomach. Diagnosis in certain cases was difficult; if they could make a positive diagnosis of syphilis of the stomach, it might be cured without operation.

Dr. ROBERT T. MORRIS, of New York, during the past two months had seen two cases operated in by famous surgeons for gastric symptoms warranting operation, but nothing was found. These patients continued to suffer and were examined by an ophthalmologist and found to have eye strain. One patient improved so rapidly that evidently the cause of her trouble was eye strain. While the percentage was not large, a definite proportion of cases with gastric symptoms were cases of eye muscle imbalance, and they must get negative or positive testimony in such cases.

Dr. HENRY L. ELSNER, of Syracuse, said that charges were brought against the internist that these cases did not reach the surgeon soon enough. He would say as the result of considerable experience, a very important reason for not delivering these cases to surgeons was the fact that they did not come to the internist. The stomach was exceedingly tolerant. The man who had a slight indigestion did not promptly seek a physician. When these patients did present themselves, over ninety per cent. of them already had a palpable tumor. He had kept records of his cases and knew whereof he spoke, and the majority of patients with a palpable tumor came to the doctor's office. These cases were easy of diagnosis. Careful examination showed that they had metastases of the glands. It was not necessary to use the x ray in such cases, as the internist was efficient enough to make a diagnosis without it when the case was far advanced. He did not believe the internist would really persist in operating in a case of eye strain through the epigastrium. At all events, he knew of no case in which an internist had made any such mistake. Doctor Friedenwald, he thought, had brought out an excellent point in connection with the latency of cancer. Personally he called attention many years ago to the long periods of latency which existed in many such cases.

Dr. JAMES PILCHER, of Brooklyn, said it might

not be altogether appreciated that cancer of the stomach and cancer of the breast occurring in young people had a greater malignancy usually than when it occurred in older people, for the reason that as a person progressed in life and reached the age of forty-five years, from then on the lymphatics became more or less sclerotic and they did not carry metastases so fast. If one had a patient with cancer of the stomach, the older he or she was, the better the chance the surgeon had for effecting a cure.

Dr. CHARLES G. STOCKTON, of Buffalo, said that when a patient representing the features so clearly described by Doctor Elsner, presented himself to the internist, such a patient was often beyond the early stage of cancer. When a man of middle age had loss of appetite, sudden disturbance of the function of the stomach for the first time in his history, and was losing weight, he would not hesitate to say that that man should have an exploratory operation. He thought very often that when a patient reached that condition the cancer was so far advanced that the surgeon criticized the internist.

Dr. PARKER SYMS, of New York, believed, that early diagnosis of cancer of the stomach was almost impossible. The question of results in operating in carcinoma depended upon an early attack, and if they were to assume that the early diagnosis deliberately made of carcinoma of the stomach was almost impossible, certainly deliberate surgery for the cure of this disease must fail very largely.

Dr. ALLEN A. JONES, of Buffalo, mentioned a very useful and simple procedure in diagnosis in gastric conditions, namely, the thread test of Einhorn. In speaking of occult blood examinations and their uncertainty, he made a plea for Einhorn's thread test, saying it was one of the most useful and simple procedures for differentiating lesions of the stomach and duodenum.

(To be concluded.)

Letters to the Editors.

MEDICINE IN CHINA.

CHANGSHA, CHINA, April 6, 1915.

To the Editors:

May I ask favor of your courtesy to state briefly something of the situation in medical education in China? The medical commission of the Rockefeller Foundation has recommended support by the foundation of four centres for medical education in China. One of these four is the Hunan-Yale Medical College and Hospital at Changsha, the capital of Hunan Province. This institution represents a joint agreement between Yale-in-China and a society of Chinese representing the Hunan government, for the development of a first class school of medicine, nursing schools for men and women respectively, a modern teaching hospital, and a diagnostic and research centre for central China. The hospital, medical preparatory school, and nurses' schools are now in operation. The standards are the highest possible. The aim is quality and not quantity of work.

The support of the Rockefeller Foundation and the rapid growth in Changsha make a large increase in the medical and nursing staff necessary within the next two years. Both laboratory and clinical branches require trained men. Doctor Hume, the head of the Yale-in-China medical staff, will be in the United States until August 1st, and will welcome inquiry from qualified applicants, or from men

now graduating in medicine or in hospital positions, who wish to investigate these great opportunities in the orient. Address Dr. E. H. Hume, 5 White Hall, Yale University, New Haven, Conn. The scope of the Hunan-Yale institution is not at all limited to Yale men.

ALFRED C. REED.

[An editorial article on this subject appeared in the JOURNAL for May 15th.—Eds.]

ELECTROTHERAPY FOR ANGINA PECTORIS.

ATLANTIC BEACH, FLORIDA, May 11, 1915.

To the Editors:

Having just read in your May 8th issue Dr. Sinclair Tousey's article on the treatment of angina pectoris by the high frequency vacuum electrodes, leads me to say that in the first draft of my article on electrotherapy in the May 1st issue of your JOURNAL, I had included reports of two cases successfully treated for angina pectoris by this same method. In order to curtail the paper, I cut these cases out. Another reason was that within a year after treatments had been stopped, contrary to my advice, both patients had sharp recurrences and were too ill to come for further treatments and so died within a few days. Ten or a dozen treatments had removed all symptoms at first, so they felt cured and failed to see the need of resuming them at occasional intervals. Doctor Tousey's patient would do well to take the hint and so ward off a recurrence.

HIRAM H. SEELYE, A. M., M. D.

ARE PHYSICIANS ABANDONING REGULAR PRACTICE?

NEW YORK, May 10, 1915.

To the Editors:

I hereby beg to protest against the issuance of life insurance policies to Christian science believers.

It stands to reason that individuals who will not seek help in early affections of the heart, lungs, or kidneys, will allow their condition to go on until they are beyond help. As a consequence the rest of the policy holders must suffer for their neglect.

Unfortunately, of late, there has been a tendency for inferior men in the profession of medicine to join the ranks of Christian science healers, their reason being obvious.

My plan would be to insert a clause in the policy which makes the granting of the same dependent upon the employment of medical help in time of need.

BARNET JOSEPH, M. D.

INSURANCE COMPANIES AND THE FAMILY DOCTOR.

NEW YORK, May 13, 1915.

To the Editors:

A vital question with many physicians today is—What becomes of the surgical patient after he has secured the attending physician's report entitling him to receive insurance compensation?

In former days, when the "submucus expert," who posed as physician for different organizations in his spare moments, was handed a certificate from the attending physician, he invariably made it his business to create in the mind of the patient a feeling of dissatisfaction regarding the competency of his attending physician, with the result that the patient lost confidence in his physician and avoided him thereafter. The same was also true of the methods followed by the doctors employed by the street railways and other corporations. In many cases, as is well known, these "experts" became so bold as seriously to overstep the bounds of professional ethics and make them liable in legal actions for slander.

Under present conditions the attending physician is required to furnish the patient with a report in detail, showing exactly the history, diagnosis, and treatment, which is then presented to the insurance doctor for certification, and judging from the fact that very few, if any, of such patients ever return to the attending physician after handing in such reports, one cannot escape the thought that methods prejudicial to the interests of physicians are still

in vogue. It is a well known fact that the insurance doctor, if so disposed, is supplied with a greater weapon for such purposes, in the form of the detailed report above referred to, than was the case in the palmiest days of our old friend, the submucous expert.

The medical societies owe it to all reputable physicians to see that some steps are taken to ascertain the extent in which such methods are still practised, and to protect physicians from these prejudicial influences.

J. COGHLAN, M.D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Problem of Cancer or The Philosophy of Malignancy.

By EUGENE COLEMAN SAVIDGE, Member New York Academy of Medicine, New York Obstetrical Society, American Medical Association, New York State Medical Society, Society Alumni Roosevelt Hospital, and Sloane Hospital for Women; Former Assistant Gynecologist, Roosevelt Hospital (O. P. D.); Former Attending Gynecologist, St. Mark's Hospital; Author of *The Philosophy of Radioactivity*, etc. New York: William R. Jenkins Company, 1915. Pp. 118.

The very nature of medical science is such that well nigh every problem still holds much matter for theory and speculation, even in the face of the very great advances made in recent decades which have brought to light many new facts. There is probably no single phase of medicine in which speculation dominates to so great an extent as that of cancer—especially its causation. An enormous mass of "literature" has accumulated on this subject, some of which aims at the discovery of scientific bases for the explanation of certain phases of the problem of the origin of malignant growths. The remainder falls more properly into the classification of theoretical speculation. For purity of speculation the palm should probably be given to the present volume. In it, at least, there is virtually nothing more tangible than the most nebulous hypothesis. The subtitle, *The Philosophy of Malignancy*, correctly describes the nature of the contained discussion. It is indeed philosophical speculation run riot. And, like many another philosophical discussion, this one exceeds both the limits of plausibility and those of the average understanding. One is prompted to say of this, as has been said of the late Henry James's more abstruse work, that there may be something in it, but it has not yet been translated into English. The author deals in what seems to be a learned way with a hypothetical something denoted the "subcomponent" of cell activity. There is much said about the relation of this hypothetical factor to wave length and frequency, about its relations to light, radium rays, and the Röntgen ray, as well as much well nigh incomprehensible theorizing on its relations to color phenomena. The mathematics of the effects of these several agents and activities is speculated upon at considerable length, but for all the speculation there is little or no tangible basis offered. The work is not only one of metaphysics, but actually fits Lewes's definition of metemprics—for it is truly concerned with the unknowable, at least with that which is at present both unknown and unknowable. It is probable that the author has some very definite ideas regarding his theories, but if so, he has concealed them from the common eye by a mass of verbiage about subcomponents, reinforcement and interference, and colors, both harmonious and inharmonious. The ensuing two sentences will give some idea of the cryptic pseudoexplanations to be found on nearly every page: "Therefore, malignancy when cured by radioactivity is cured because radioactivity has reinforced its color. It is caused by radioactivity when radioactivity interferes with its color." The volume contains a request for suggestions for the preparation of a new edition of this book. We should like to offer but one—that the author couch the new edition in language sufficiently comprehensible to the average mind to enable its possessor to grasp the ideas which it is desired to offer for discussion.

The Vicious Circles of Neurasthenia and Their Treatment. By JAMIESON B. HURRY, M.A., M.D. (Cantab.), Author of *Vicious Circles in Diseases*. With Illustrations. London: J. & A. Churchill; Philadelphia: P. Blakiston's Son & Co., 1915. Pp. xv-90. Price, \$1.40.)

Of all the complaints with which the practitioner has to deal, one of the most perplexing and obstinate is that vague condition called neurasthenia. Anything new upon this subject which may lead to its better understanding and treatment is, therefore, quite welcome to every physician. This little volume of Hurry's may properly be called a genuine contribution to our knowledge, although its title would lead one to think that it dealt with it from a single narrow point of view. As a matter of fact, Hurry takes up the causation of neurasthenia in a comprehensive way and shows its relation to perversions and diseased conditions in the several physiological systems of the body. He opens with a short chapter on the pathology of the condition, in which he seeks to establish his contention that its manifestation is usually closely bound up with other conditions and influences which either produce the neurasthenia, or at least perpetuate and increase it. This association with other conditions constitutes a vicious circle in each case, the several components of which so interact as to make the affection self-perpetuating. The several types of vicious circle associated with neurasthenia are discussed under the heads of the psychoses, those associated with the vascular system, the respiratory, digestive, and genito-urinary systems, with the sense organs, and lastly with certain artificial conditions such as the indiscriminate use of drugs and narcotics, etc. Lest he be accused of riding a hobby of his own, Hurry has introduced verbatim quotations from many authorities touching upon the several types of vicious circles encountered. On the basis of the vicious circle acting either in causing or perpetuating neurasthenia, he closes with two chapters on the treatment of the condition. The essential features of treatment consist in finding the weakest link in the circle through careful analysis of the case and breaking its continuity at that point; to which there should be added special attention to any other contributory conditions of an organic nature. All in all, the volume is both very readable and highly instructive in drawing special attention to the mode of attack which is likely to give the best results in the treatment of this distressing and baffling ailment, to which so many otherwise useful members of the community are subject.

The Modern Factory. Safety, Sanitation, and Welfare.

By GEORGE M. PRICE, M.D., Director, Joint Board of Sanitary Control in the Cloak, Suit, and Skirt, and the Dress and Waist Industries, New York City, Formerly Director of Investigation, New York State Factory Commission. First Edition. First Thousand. New York: John Wiley & Sons, Inc., 1914. Pp. xx-574. (Price, \$4.)

The present volume is the most recent addition to the rapidly accumulating literature on occupation diseases and hygiene. It presents the reader with a survey of industrial conditions in general, in the United States; and a discussion of the safety, efficiency, and sanitation of industrial establishments in all parts of the world. The author shows factories as they are and as they should (and might) be; and in writing this work he draws on an extensive personal experience with his subject. The topics considered are: The factory, its rise, growth, and influence; the workplace; factory fires and their prevention; factory accidents and safety; light and illumination in factories; factory sanitation; air and ventilation in factories; industrial dusts and dusty trades; industrial poisons, gases, and fumes; factory legislation; and factory inspection.

The House Fly. Musca Domestica Linn. Its Structure, Habits, Development, Relation to Disease and Control. Cambridge Zoological Series. By C. GORDON HEWITT, D. Sc., F. R. S. C., Dominion Entomologist of Canada; Formerly Lecturer in Economic Zoology in the University of Manchester. Cambridge: At the University Press, 1914. Pp. xv-382.

Within recent years the role of insects as carriers of human diseases has come to be a matter of the greatest vital interest, particularly to sanitarians, but scarcely less so to general practitioners and to the better informed laymen. This volume of Hewitt's on that commonest of all

insects, the house fly, is a scientific study of its morphology, habits, and bionomics, and of its relations to the spread of disease. It is not a popular work, but is one which will make its appeal especially to entomologists and practical sanitarians. In spite of the fact that the author's avowed purpose in the preparation of this volume was to supply a scientific treatise upon the biology of the house fly, he has included several chapters which cannot fail to be both valuable and highly interesting; notably those in which he discusses the breeding habits, life history, role as a disseminator of disease, range of flight and distribution, and methods of destruction and prevention of breeding of this insect menace. In addition to the comprehensive discussion of the house fly, chapters are also included dealing with certain of its allied species such as the lesser house fly, and some of the stable flies which are more commonly encountered. The volume is profusely illustrated and well indexed, and so provides a ready reference work for those interested. Appended there is a comprehensive bibliography, covering over 600 references to works upon the fly. These references extend from the earliest studies on record down to works appearing as recently as the latter part of 1914.

Directions for a Practical Course in Chemical Physiology. By W. CRAMER, Ph.D., D.Sc. Second Edition. New York, Bombay, and Calcutta: Longmans, Green & Co., 1915. Pp. viii-102. (Price, \$1.)

This seems to be a valuable little work and is commended to the attention of laboratory instructors and others engaged in teaching medical students. The author very wisely abstains from trying to teach the student too much; and he also begins his work with substances which are familiar to the worker. The work seems well adapted to its purpose.

Interclinical Notes.

The *Survey* for May 15th discusses the laggard labor law of Pennsylvania, the new combination between the Presbyterian Hospital and Columbia University (see our Miscellany), and the discussion at the Academy of Medicine as to what certified milk is. There is also an interesting account of what is being done by colored physicians in the south to improve sanitary and hygienic conditions among the negro families. Sickness and death among the colored population is said to cost the south over \$200,000,000 annually.

Our old friend, *Current Opinion*, comes to us for May with its usual load of information on various subjects, boiled down from the original sources so as to be quickly assimilated. There is a review of world events for the past month; three biographical sketches; music and drama—including the "movies"; science and discovery, with new adventures of an atom, not at all like those written by our distinguished colleague, Smollett; religion and ethics, literature and art, and the business world; also "shear nonsense." There is an analysis of the adventures of Samuel Hopkins Adams with certain retail advertisers, which ought to be read by our friends, who are apt to order goods by mail.

If you care to know how one physician argued himself scientifically into Christian Science, you may learn by perusing what follows, taken from the *New York Tribune* for May 15, 1915: "The so called laws of health that civilization makes and breaks, and yet builds upon, are as changeable and unreliable as the wind that blows; and are all built upon the shifting sands of physical observation, conjecture, doubt, and fear; having no principle or foundation in fact. . . . The so called laws of health are no more the laws of God than the laws of evil are the laws of good, or the law of wrong is the law of right." Simple, isn't it?

* * *

"The *Lusitania*, like the South African liner *Falaba*, was torpedoed without warning and sank so rapidly that many passengers had no time to take to the boats. About 1,150 persons were lost, 114 of them being Americans, the most

notable of whom was Alfred G. Vanderbilt." Thus *Lestie's* for May 20, 1915. There were a dozen Americans distinguished in the best sense, on board the *Lusitania*, and to single out this young man shows an amazing and, we hope, unique standard of judgment.

* * *

The *Review of Reviews* for May discusses temperance in France, Russia, and England; the Red Cross expedition to Serbia; health in the armies; Senator Beveridge's comments on the German war hospitals and the treatment of the German wounded; all of which may be considered as especially interesting to physicians. But to the physician as an ordinary citizen, the Review offers its customary table of good things, well selected and ably edited.

Meetings of Local Medical Societies.

MONDAY, May 24th.—Medical Society of the County of New York.

TUESDAY, May 25th.—New York Psychoanalytic Society; New York Dermatological Society (annual); Metropolitan Medical Society of New York City; Buffalo Academy of Medicine (Section in Pathology); New York Medical Union; New York Otological Society; New York City Riverside Practitioners' Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York.

WEDNESDAY, May 26th.—New York Academy of Medicine (Section in Laryngology and Rhinology); New York Society of Internal Medicine (annual); Schenectady Academy of Medicine.

THURSDAY, May 27th.—New York Academy of Medicine (Section in Obstetrics and Gynecology); Ex-Intern Society of Sney Hospital, Brooklyn; Medical Union, Buffalo; Hospital Graduates' Club, New York; New York Physicians' Association.

FRIDAY, May 28th.—Society of New York German Physicians (annual); New York Clinical Society; Manhattan Medical Society; Brooklyn Society of Internal Medicine; Italian Medical Society of New York; Academy of Pathological Science, New York; Hospital Graduates' Club, Brooklyn.

SATURDAY, May 29th.—New York Medical and Surgical Society; West End Medical Society; Lenox Medical and Surgical Society (annual).

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending May 12, 1915:

Boggess, J. S., Surgeon. Granted thirty days' leave of absence from May 10, 1915. **Cofer, L. E.**, Assistant Surgeon General. Directed to proceed to Boston, Mass., on duty in connection with quarantine matters; returning, to stop at Ellis Island, N. Y., for the inspection of certain matters in connection with the examination of immigrants. **Freeman, A. W.**, Epidemiologist. Directed to proceed to Lawrence, Topeka, and other places in Eastern Kansas, for the purpose of carrying on investigations of rural sanitation. **Gardner, C. H.**, Surgeon. Granted one day's leave of absence, May 8, 1915, under paragraph 193, Service Regulations. **Hommon, H. B.**, Sanitary Chemist. Directed to proceed to Cincinnati, Ohio, for conference relative to the study of industrial wastes to be made at Cincinnati. **Irwin, Fairfax**, Senior Surgeon. Granted two months' leave of absence, from May 24, 1914, with permission to visit the West Indies. **Kolb, Lawrence**, Passed Assistant Surgeon. Directed to proceed to various points in Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and Alabama, on duty relative to physical examinations for the United States Coast Guard. **McMullen, John**, Surgeon. Directed to proceed to Bal-

timore, Md., for conference in regard to investigations of trachoma; thence to Wheeling and Charleston, W. Va., for conference with State authorities relative to the location of a trachoma hospital in that State. **Michel**, Carl, Assistant Surgeon. Relieved from duty in pellagra investigations, at Jackson, Miss., and ordered to proceed to Ellis Island, N. Y., for duty. **Mullan**, E. H., Passed Assistant Surgeon. Granted three days' leave of absence from May 15, 1915. **Perry**, J. C., Senior Surgeon. Granted twenty-two days' leave of absence on account of sickness, from April 26, 1915. **Sprague**, E. K., Surgeon. Directed to proceed to Bangor, Lewiston, and Portland, Me., May 17-19, 1915, to deliver addresses on public health subjects, under the auspices of the Maine Antituberculosis Association. **Tarbell**, B. C., Acting Assistant Surgeon. Directed to proceed to points in the vicinity of Naco, Arizona, when requested by the immigration service, to examine detained aliens. **Treadway**, W. L., Assistant Surgeon. Orders to visit Faribault, Minn., revoked, and directed to proceed to Milwaukee, Wis., for conference relative to methods in use at the school for the feeble-minded. **Voegtlin**, Carl, Professor. Directed to proceed to Baltimore and Philadelphia, to inquire into scientific methods in use in laboratories in connection with special investigations of pellagra. **Waring**, C. H., Assistant Surgeon. Directed to proceed to points in the vicinity of Jackson, Miss., for observation of inmates of orphanages in which pellagra investigations are being conducted. **Wheeler**, G. A., Assistant Surgeon. Granted two days' leave of absence from May 6, 1915. **White**, Joseph H., Senior Surgeon. Directed to proceed to Dickson, Tenn., to investigate a suspected case of leprosy. **Wille**, C. W., Surgeon. Granted four days' leave of absence from May 8, 1915.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending May 15, 1915:

Demmer, Charles C., Captain, Medical Corps. After arrival in the United States, and upon the expiration of such leave of absence as has been or may be granted him, ordered to proceed to the Presidio of San Francisco, Cal., and report in person to the commanding officer of that post for duty, and by letter to the commanding general, Western Department. **Maus**, L. Mervin, Colonel, Medical Corps. His retirement from active service on May 8th, 1915, by direction of the President, under the requirements of the act of Congress approved June 30, 1882, is announced.

United States Navy Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Navy for the three weeks ending May 15, 1915:

Boone, J. T., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C., and ordered to temporary duty at the Naval Training Station, Norfolk, Va. **Brister**, J. M., Surgeon. Detached from the *Kearsarge* and ordered to the *Alabama*. **Brown**, H. L., Passed Assistant Surgeon. Detached from the *Alabama* and ordered to the *Chester*. **Dykes**, J. R., Surgeon. Placed on retired list of officers of the Navy from April 27, 1915, and ordered home. **Foster**, T. T., Passed Assistant Surgeon. Detached from the Naval Disciplinary Barracks, Port Royal, S. C., and ordered to the *Chester*; detached from the *Chester* and ordered to the Atlantic Reserve Fleet. **Hart**, S. D., Assistant Surgeon. Detached from the Naval Hospital, Las Animas, Col., to wait orders at Washington, D. C. **Lowndes**, C. H. T., Medical Director. Commissioned a medical director from April 18, 1915. **Man**, A. E., Assistant Surgeon. Detached from the Naval Medical School, Washington, D. C. **Manchester**, J. D., Surgeon. Ordered to the Naval Hospital, Portsmouth, N. H. **Reed**, E. U., Passed Assistant Surgeon. Detached from the Marine Recruiting Station, Detroit, Mich., and ordered to the *Maine*. **Richardson**, R. R., Surgeon. Detached from the Great Lakes Training Station, and ordered to the Naval Hospital, Las Animas, Colo. **Ryder**, C. E., Surgeon. Ordered to the Naval Training Station, Great Lakes. **Sicard**, M. H., Assistant Surgeon, Medical Reserve Corps. Commissioned an assistant surgeon from April

12, 1915. **Stoops**, W. A., Assistant Surgeon. Detached from the Naval Hospital, New York, and ordered to temporary duty at the Naval Hospital, Newport, R. I. **Walton**, D. C., Passed Assistant Surgeon. Detached from the Naval Academy, Annapolis, June 7, 1915, and ordered to the *Ohio*.

Births, Marriages, and Deaths.

Married.

Barnes—Ryan.—In Fond du Lac, Wis., on Wednesday, April 28th, Dr. H. T. Barnes, of Pewaukee, Wis., and Miss Hazel Ryan. **Beebe—Thompson**.—In Paulsboro, N. J., on Wednesday, April 28th, Dr. Richard C. Beebe, of Lewes, Del., and Miss Edna Thompson. **Hartwich—Miller**.—In Denver, Colo., on Wednesday, May 5th, Dr. Homer A. Hartwich, of Madison, S. Dak., and Miss Ethelyn Miller. **Sanborn—Henderson**.—In Methuen, Mass., on Friday, May 7th, Dr. George P. Sanborn, of Boston, Mass., and Miss Adalyn P. Henderson. **Wright—Westcott**.—In Richford, N. Y., on Wednesday, April 28th, Dr. James Wright, of Berkshire, N. Y., and Miss Marjorie Westcott.

Died.

Beemer.—In Kenosha, Wis., on Sunday, May 2d, Dr. Charles Wilkin Beemer, aged forty-five years. **Bell**.—In Belding, Mich., on Saturday, May 1st, Dr. William Bell, aged sixty-eight years. **Bruno**.—In Lawrence, Mass., on Saturday, May 1st, Dr. Florestano Bruno, aged thirty-three years. **Chase**.—In Eau Claire, Wis., on Tuesday, May 4th, Dr. Ralph R. Chase, aged fifty-five years. **Clark**.—In Guilford, N. Y., on Wednesday, April 28th, Dr. Richard Marvin Clark, aged sixty-nine years. **Darrow**.—In Brockport, N. Y., on Tuesday, May 4th, Dr. Silas W. Darrow, aged sixty-eight years. **Edwards**.—In Milwaukee, Wis., on Sunday, May 2d, Dr. Sherman Edwards, aged fifty years. **Frank**.—In St. Louis, Mo., on Tuesday, May 4th, Dr. John N. Frank, aged sixty-six years. **Gowers**.—In London, England, on Tuesday, May 4th, Sir William Richard Gowers, M. D., aged seventy years. **Griffing**.—In South Jamesport, L. I., on Wednesday, May 5th, Dr. George P. Griffing, aged sixty-two years. **Henry**.—In Oakland, Cal., on Sunday, May 2d, Dr. Joel Francis Henry, aged seventy-four years. **Houston**.—In Moundsville, W. Va., on Monday, May 3d, Dr. Isaac Newton Houston, aged sixty-five years. **Hutchinson**.—In Minneapolis, Minn., on Saturday, April 24th, Dr. William F. Hutchinson, aged seventy years. **Jones**.—In Memphis, Tenn., on Thursday, April 29th, Dr. Charles H. Jones, aged seventy years. **Kelley**.—In Woburn, Mass., on Wednesday, May 5th, Dr. Seth Wight Kelley, aged sixty-seven years. **Kerns**.—In Moline, Ill., on Saturday, May 1st, Dr. Edward Lincoln Kerns, aged forty-nine years. **Lee**.—In Framingham, Mass., on Wednesday, May 5th, Dr. John A. Lee, aged twenty-eight years. **McCandless**.—In St. Louis, Mo., on Sunday, May 2d, Dr. William L. McCandless, of Pinckneyville, Ill., aged sixty-six years. **McCarthy**.—In Rockville, Conn., on Sunday, May 2d, Dr. Lawrence J. McCarthy, aged thirty-three years. **Maercklein**.—In Milwaukee, Wis., on Friday, April 30th, Dr. Bernard G. Maercklein, aged sixty-seven years. **Matthews**.—In Dayton, Ohio, on Wednesday, May 5th, Dr. Edna T. Matthews, aged fifty-seven years. **Newman**.—In Spokane, Wash., on Friday, April 30th, Dr. DeWitt C. Newman, aged fifty-seven years. **Polglase**.—In New York, on Tuesday, May 4th, Dr. William Austin Polglase, of Brooklyn, N. Y., aged fifty-nine years. **Seaver**.—In Berkeley, Cal., on Wednesday, May 5th, Dr. Jay W. Seaver, aged sixty years. **Shellenberger**.—In Colorado Springs, Colo., on Thursday, April 29th, Dr. Charles N. Shellenberger, aged fifty-nine years. **Spencer**.—In Cleveland, Ohio, on Saturday, May 1st, Dr. George W. Spencer, aged sixty-four years. **Stewart**.—In Phillipsburg, N. J., on Friday, May 14th, Dr. Robert A. Stewart, aged sixty-four years. **Wilcox**.—In Augusta, Ga., on Wednesday, May 5th, Dr. George A. Wilcox, aged sixty-six years. **Winnie**.—In Sidney, N. Y., on Monday, April 26th, Dr. John V. E. Winnie, aged seventy-one years.

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Original Communications.

BLINDNESS OF THE NEWBORN.*

Ophthalmia Neonatorum.

BY HENRY P. DE FOREST, PH. B., M. S., M. D.,
New York,

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Medical Officer, Municipal Civil Service Commission
of the City of New York.

Introduction. Blindness of the newborn or ophthalmia neonatorum is a subject which the secretary feels more like discussing than some others that have come before the society. The fact that for over twenty years he has been a teacher of obstetrics in two of the medical colleges of the city is, of course, the chief reason for this interest, but the importance of the subject is self evident to all intelligent persons whether they are physicians or laymen. A presentation of the subject, therefore, from the point of view of the obstetrician is not out of place.

Definition. Ophthalmia neonatorum is an infectious purulent conjunctivitis in the newborn, due to the gonococcus of Neisser or some other pus producing germ, and produced by contact of the eye with vaginal secretions from the mother during labor, or by infected fingers, instruments, or cloths. This disease is also referred to in medical literature by the following synonyms: Ophthalmia neonatorum, ophthalmia gonorrhoeica, ophthalmoblenorrhoea, psorophthalmia, gonorrhoeal ophthalmia, acute blennorrhoea of the conjunctiva, intrauterine blindness, congenital blindness, and blindness of the newborn.

History. Thoroughly to appreciate the importance of any subject, a certain amount of historical knowledge is prerequisite. In 1764, for instance, over 10,000 persons died in the city of Boston alone as the result of smallpox. So great was the harvest of death that a book in my library, written at that time and dedicated to Her Majesty, the Queen of England, speaks of this as *The Great Plague of Boston*. Since the first vaccination by Jenner, May 14, 1796, and the progressive use of this means of prevention among civilized peoples, smallpox has practically ceased to exist in such countries, though it still is prevalent in some parts of Mexico close to our own boundaries.

In the village of Fulton in this State, to cite a similar instance, during the two years from 1836 to

1838, practically every woman who was delivered of a child died of what was then called "childbed fever." To become pregnant at that time was regarded as a death warrant. Oliver Wendell Holmes, in 1843, in our own country, and later Semmelweis, in 1847, in Vienna, demonstrated that puerperal fever was really a synonym for infection, and that the poison was carried by the medical students from the dissecting room to their patients in the hospitals, or by midwives from one patient to another. It was soon discovered, even before the exact nature of the contagion was known, that, if the hands were disinfected, "childbed fever" would not occur. In the course of a few short years, as our knowledge of bacteriology increased, the mortality dropped, as a result, from 100 per cent. in epidemics similar to the one I have mentioned, to a fraction of one per cent., and, indeed, a very small fraction. In twenty-five years of private practice I have personally seen but one death from this cause—a woman in whom, through carelessness or ignorance, the attending physician neglected to remove the afterbirth at the time the child was born. This became infected, and when first I saw the woman in consultation a week later, death was already impending.

Other instances could be cited of similar advances in preventive medicine during the past century. The work of Reed and Carroll, in 1898, led directly to the prevention of yellow fever. Russell in 1899, began to develop the prophylaxis of typhoid fever. Townsend, in 1914, discovered the cause of Peruvian verruga, and its prevention is near at hand. Each of these discoveries has meant the saving of thousands of lives and has prevented the loss of millions of treasure.

In a precisely similar way ophthalmia neonatorum should be studied. If we are to believe history, but little over a century has elapsed since epidemics of blindness in hospitals caused the loss of sight in practically every child born in the institution. In one hospital in Hamburg in 1798, ninety-eight per cent. of all the children born became blind during the first month of life. With an absolute lack of knowledge at that time of the true causation of disease, these epidemics were regarded as an act of God or as a judgment inflicted upon mankind for imaginary offences.

With the progress of medicine some slight improvement took place during the first half of the nineteenth century, but epidemics of blindness occurred from time to time as is shown by all the records which can be consulted. Thus Killian gives the percentage of blennorrhoea at the Maternity Hos-

*Presented in outline at the regular meeting of the American Society of Sanitary and Moral Prophylaxis at the New York Academy of Medicine, December 10, 1914. Read before the Alumni of the Methodist Episcopal (Seney) Hospital, April 10, 1915.

pital at Berlin as nearly fifty per cent. in 1826-1834. In 1868, this proportion was decreased to 5.6 per cent. in the Lying-In Hospital, while in the Charité of the same city from twelve to fourteen per cent. of the babies became blind. The proportion of cases occurring in hospitals was much greater than in private practice, and, although we now can well understand the reason for this pronounced difference, at that time it was regarded as due to overcrowding; just as typhus fever, which was so fatal a malady during the same period, was given the descriptive appellations "ship fever," "prison fever," and "starvation fever," entirely in ignorance of the fact that the common body louse is the real carrier of the disease.

Neisser's discovery of the gonococcus. All of this uncertainty and misapprehension was destined to come to an end. In 1879, the very year when the writer began his own collegiate studies, Albert Neisser, a physician still living in Breslau (Fig. 1) discovered in the pus of gonorrhea, minute bacteria always occurring in pairs and looking like two small biscuits base to base¹ (Fig. 2). These he suspected of being the direct cause of gonorrhea, one of the two social diseases with which this society is particularly concerned. The same micrococcus was soon afterward discovered in the discharge from the conjunctiva of the eye in the three varieties of conjunctivitis referred to by the synonymous terms, "acute blennorrhea of the conjunctiva," "gonorrheal ophthalmia," and "ophthalmia neonatorum." These observations of Neisser were repeatedly confirmed within the next few years, and the germ both of gonorrhea, or "clap" as it is sometimes called, and of ophthalmia neonatorum is now known as the "gonococcus of Neisser."

Credé's method of prevention. After the discovery of Neisser and further knowledge of the means of transmission of the gonococcus, efforts were at once begun by a number of observers to discover a remedy which would speedily destroy this microorganism without material or permanent injury to the delicate structure of the eye. In 1884, these efforts were crowned with success. In that year there appeared an article by Carl Sigmund Franz Credé, of Leipsic (Fig. 3), entitled, *The Prevention of Inflammation of the Eyes in the Newborn* (*Die Verhütung der Augenentzündung beim Neugeborenen*). Credé found that nitrate of silver in solution was a powerful germicide, and could with safety be used in the eye. By a series of experiments he demonstrated the fact that, properly used in the right strength, it would destroy any gonococci which might be present in the eye at birth, and effectively prevent the occurrence of ophthalmia neonatorum. His method of procedure is as follows:

Before using the medication, the face of the child should be carefully but thoroughly wiped clean of amniotic fluid, vernix caseosa, and other discharges incident to labor. The eyelids and eyelashes themselves are then thoroughly but gently wiped with absorbent cotton soaked in a saturated solution of boric acid and then dried with sterile cotton or lint squares. The eyelids of one eye are then carefully

separated, preferably by an assistant (Fig. 4), and into the conjunctival sac thus exposed, a single drop of a two per cent. solution of nitrate of silver is instilled and the eyelids are released. Any surplus solution is wiped off with a pledget of cotton. The other eye is then treated in the same manner. Any excess of nitrate of silver can be neutralized by dissolving one half teaspoonful of table salt in one half tumbler of water. A teaspoonful of this solution is poured over each eye after the use of the silver nitrate. The details of this procedure are shown in Fig. 5. This is known as the Credé method for the prevention of blindness, and thus the name of the discoverer will for years be associated with one of the most beneficent discoveries in the history of medicine.

It was my good fortune in 1890, 1892, and 1893 to have service at the Sloane Maternity Hospital under the direction of Dr. Ervin Alden Tucker, the best obstetrician, in my opinion, that America has thus far produced. He is dead now, so that this may be said without arousing any unkind criticism. The method formulated by Credé himself and described above was the one then in vogue at the Sloane. It was systematically used with every living child born in that institution, and from my own observations and from the hospital records, in over 5,000 cases ophthalmia neonatorum was nonexistent. This method I have continued to follow exactly as described and see no reason for deviating from it. In my own practice of over 2,400 maternity patients, but two cases of ophthalmia neonatorum have occurred. Both serve "to point a moral and adorn a tale."

The first case occurred early in my practice. I had known the mother for some years. There was no reason to suspect that she had gonorrheal infection, and, relying on this fact, I omitted the precautionary measures. On the third day after birth a marked gonorrheal ophthalmia developed and the husband, upon being questioned, admitted an attack of gonorrhea seven years before his marriage. *Tripper-Fäden*, or gonorrheal threads, were found in his urine, and the gonococcus was found in the vaginal discharge of the mother and in the purulent ophthalmia which developed in the baby. Prompt and ceaseless attention cured the attack and the child's eyes were saved without injury.

A few years later I confined the wife of a medical student who requested me not to use the nitrate of silver, "as it was entirely unnecessary and reflected unfavorably on his character." Again purulent ophthalmia developed, three days after the child was born. The nurse was blamed for this by the father and was discharged. Later developments showed that the mother had pediculi pubis and syphilis, as well as gonorrhea—all contracted from her worthless husband, who, I am glad to say, failed in his examinations and is now running a pawnshop. You can draw your own inferences. With this baby, also, routine and effective treatment was at once instituted, and with the assistance of a competent ophthalmologist the baby recovered with no injury to the eyes. The writer has learned his lesson, however, from these two cases, and with him the Credé technic is now as much a part of the routine of labor as is the tying of the umbilical cord.

¹Centralblatt f. d. med. Wissenschaft., p. 497, 1879.

From time to time new salts of silver have been discovered. Protargol in a five per cent. solution, argyrol in a twenty per cent. solution, nitrate of silver in a one per cent. solution, sophol, and many other antiseptics have been tried by various men in various institutions. It is true that some of these preparations appear to be less irritating to the eye, but it also appears probable that they are less efficacious for that very reason, since a certain depth of penetration is absolutely necessary if gonococci are to be destroyed. A careful study of the many textbooks on obstetrics shows that the original method of Credé still maintains its deserved preference in the minds of a large majority of teachers.

The following statistical report, the most complete thus far available in literature regarding the efficiency of the various germicides which have been used, is taken from the excellent work of Sydney Stephenson²:

Agent.	Births.	Percentage of ophthalmia.
Silver nitrate, two per cent.....	76,452	0.703
Silver nitrate, weaker than two per cent..	36,132	0.423
Silver nitrate ointment, two per cent.....	703	0.142
Silver acetate, one per cent.....	6,144	0.19
Silver citrate	43	4.05
Argentamine, five per cent.....	115	2.60
Protargol	7,383	0.027
Argyrol	6,984	0.25
Sophol	1,050	0.095
Corrosive sublimate	15,915	0.4069
Carbolic acid	2,148	5.42
Boric acid	701	4.51
Iodine trichloride	761	1.2
Salicylic acid	2,130	1.03
Potassium permanganate	1,316	0.53
Iodoform	1,894	3.16
Formalin, one per cent.....	120	3.3
Zinc sulphocarbolate, 0.5 per cent.....	500	0.2
Lemon juice	5,008	1.27
Citric acid, five per cent.....	15,000	1.10
Aniodol	1,844	0.045
Alcohol, fifty per cent. and seventy per cent.	720	1.36
Hermophenyl	250	0.40

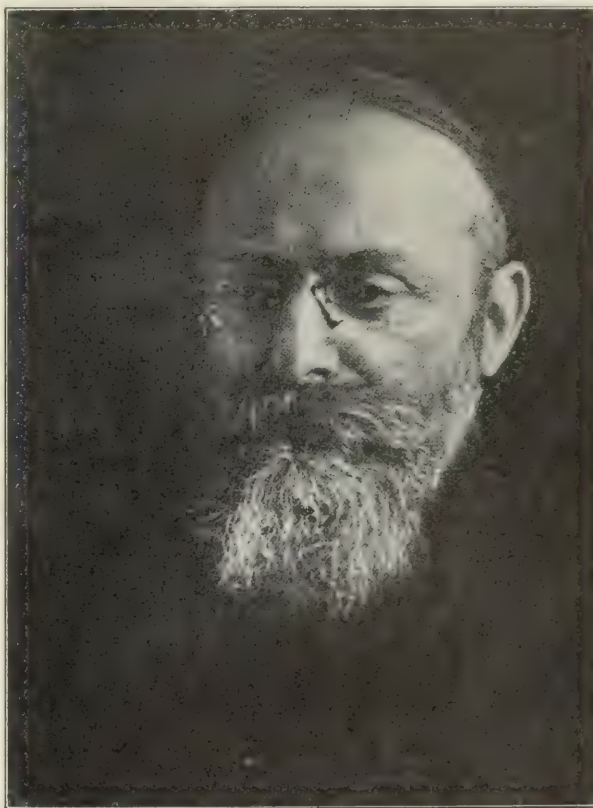
Results of the use of the Credé method. The immediate results which followed the introduction of Credé's technic are striking and convincing. Credé formerly had at the Leipsic Lying-In Asylum an average of 10.8 per cent. of cases of ophthalmia neonatorum in the whole number of newborn. After the introduction of his prophylactic method, the number sank to 0.1 to 0.2 per cent.

Dr. Henry J. Garrigues, of this city, for many years obstetric surgeon to the New York Maternity Hospital, states: "The disease used to be very common. In a service of only thirty-five births a month we had frequently half a dozen cases of ophthalmia on hand in the maternity hospital. In other institutions from seven to twelve per cent. of the children were thus affected."

All this has been changed since Credé's great discovery that in silver nitrate we have an almost absolutely sure prophylactic against gonorrheal ophthalmia. During the first twelve months after I introduced this treatment in the maternity hospital, 351 children were born alive. All had the silver treatment, and not a single one got inflammation of the eyes in a service full of women from the very lowest strata of the city, many of whom were doubtless affected with old or recent gonorrhea. A single child, through the negligence of an assistant, was not treated, was attacked by ophthalmia, and, although put under the care of able physicians in the eye

department, lost the sight of both eyes. This has made such a deep impression on me that I am inclined to ascribe the rare cases that yet are reported not to unreliability of the remedy, but to unfaithfulness in its use."³

In the Dublin Rotunda, where the writer had some little experience in 1902, 5,630 women were delivered in four years; only eight children acquired ophthalmia. To this number must be added one which was known to have acquired the disease after the mother's discharge from the hospital on the eighth day. It is easy to understand how contaminating



Albert Neisser

FIG. 1.—Albert Neisser, born at Breslau, January 22, 1855, Professor of Dermatology, Imperial University of Breslau; Medical Counsellor of the German Empire.

rags, towels, or marine sponges could serve as a medium for the conveyance of infection even at a later date.

Directions to nurses and to midwives. The directions given to nurses and midwives at the Rotunda are worthy of repetition.

Place the infant on the nurse's lap with the face looking toward the ceiling. Pour a little pool of the silver nitrate solution into the hollow between the child's nose and eye and then let the upper and lower eyelids be pulled apart by the thumbs of the nurse. The inexperienced have expressed fears lest the eye be injured by an excess of the silver solution, but such fears may be dismissed as groundless.

This treatment may make the baby's eyes red for a

²Ophthalmia Neonatorum with Especial Reference to Its Causation and Prevention. Sydney Stephenson, M.B., C.M., Ophthalmic Surgeon to Queen Charlotte's Hospital, London. George Puhman, Sons, London, 1907.

³Henry J. Garrigues, A.M., M.D., *A Textbook of the Science and Art of Obstetrics*.

day or two, but it has saved hundreds of babies from becoming blind after birth owing to the terrible inflammation of the eyes that occurs when any yellow vaginal discharge of the mother gets into them.

So much of your work will be among the poor, among

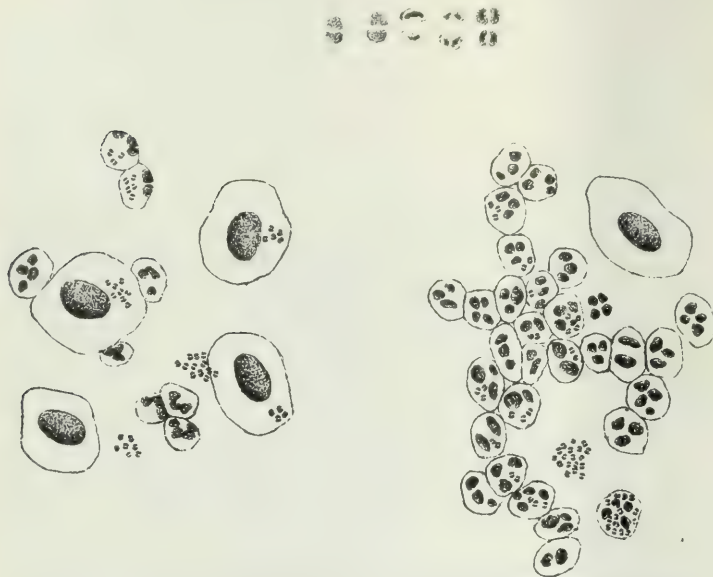


FIG. 2.—The gonococcus of Neisser. In the upper figure pairs of gonococci, greatly magnified, show the biscuit shape of the individual bacteria. In the lower figure the gonococci are shown as they appear mixed with the pus cells in the discharge from the eye.

whom these vaginal diseases are more common, that I advise you to do this to every baby's eyes as a routine. The ophthalmia, occurring soon after birth, is the principal cause of blindness in the unfortunate people who are said to have been born blind or be blind from birth. You cannot overrate its seriousness.

Causes.—These are the infection of the eyes of the child during the second stage of labor by yellow vaginal discharge, or sometimes the transference of the same at a later date to the baby's eyes by the mother's fingers.

Signs.—The signs are redness of the eyes and gumminess of the lids. They begin, as a rule on the third day. On the first two days you may get a little redness and gumminess of the lids from the silver nitrate which you dropped into the eyes to prevent this terrible disease. But in ophthalmia neonatorum the redness quickly increases, the eyelids swell, and, when you separate them, yellow matter wells out.

Treatment.—Proper dropping in of silver nitrate solution into the eye is of the utmost importance in staving off this disease. When established prompt medical treatment saves the majority of affected children's sight. It consists of constant bathing of the child's eyes and other details.

The doctor will probably expect you to bathe the child's eyes, and there are one or two points to remember. The first point is that when you open the child's lids the pus may squirt out. If it squirts into your own eyes, you will get the dread disease yourself. So keep your face out of danger or wear goggles. The second is that the pus on your fingers, on wipes, etc., if carried to the eyes, produces the disease. Therefore wash your hands carefully after attending the baby, and then hold them for five minutes in some disinfectant solution, such as corrosive sublimate (one in 2,000). Burn all the wipes after use. Warn the mother and others who are near the child of the infectious nature of the pus. Thirdly, get clear instructions as to the bathing and care of the child's eyes from the doctor. Lastly, you should consult the doctor before attending healthy women at their confinements, or other babies, and ask him what you should do to avoid carrying the infection.

The Rotunda prophylaxis extends even further than this, for it is there the rule to douche out the vagina during the second stage of labor in all women who are found to be suffering from purulent dis-

charges. Cyllin is the solution used in Dublin, but one per cent. lysol or one in 5,000 corrosive sublimate is equally effective.

In our own city the following circular is issued by the department of health for the instruction of midwives:

Blindness often due to neglect or ignorance.—It has been stated that more than one fourth of all blind people have lost their eyesight because of the ignorance or neglect of those who cared for them at the time of birth.

Most common cause of blindness.—A common cause of blindness is an infection of the eyes which occurs at birth, unless proper precautions have been taken. Within a few hours after birth, or at any time within a few days, there appears a thick, sticky, whitish or yellowish discharge of pus ("matter") in the baby's eyes, and the eyelids grow dusky red, thickened, and swollen. This condition often results in complete blindness within a short time.

Prevention.—It is the duty of every midwife, or nurse, intrusted with the care of newly born babies to prevent this infection, and to preserve the baby's eyesight. Prevention is simple and easy, while cure is difficult and uncertain.

What the midwife should instruct the mother to do before the baby is born.—All pregnant women should thoroughly cleanse themselves daily with soap and water and a clean washcloth. If any discharge is present, a physician should be consulted, or the mother should go to a dispensary.

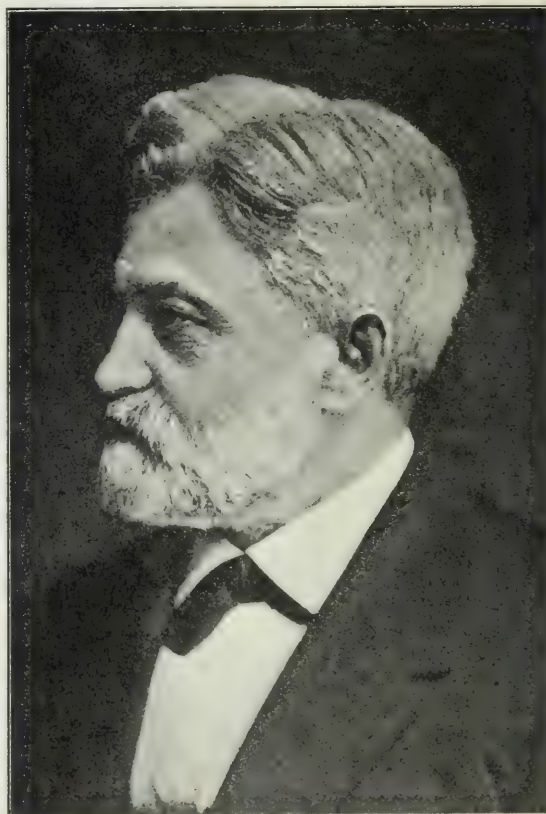


FIG. 3.—Carl Sigmund Franz Credé, born at Berlin, December 23, 1819, died at Leipsic, March 14, 1892.

What the midwife should do during labor.—As soon as the baby is born, the midwife must carefully clean the eyelids with water that has been boiled, using a separate soft linen cloth, or clean absorbent cotton for each eye. She should wipe the lids from the nose outward, without open-

ing the lids. Then the eyelids should be separated, and two drops of a one per cent. solution of silver nitrate dropped into each eye. A dropper must be used, which is not employed for any other purpose, and the glass part of which must be boiled before it is dipped into the solution. The drops will be furnished to any midwife free of charge, on application to the board of health.

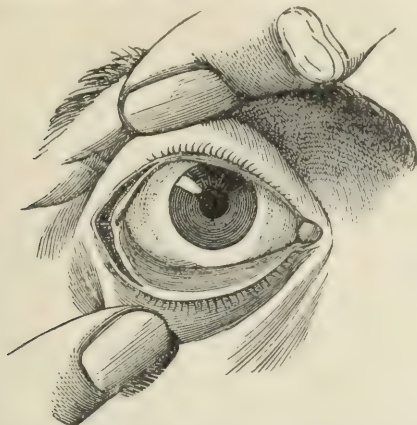


FIG. 4.—The eye properly opened to instil the Credé solution.

How to care for baby's eyes.—The baby's eyes should be attended to every day, after the bath. The hands of the mother, midwife, or nurse who attends to this, must first be scrubbed and washed with soap and hot water and wiped with a clean towel. Nothing that is not perfectly clean should touch the baby's eyes. No water, linen cloth, cotton, or any other article used for the mother must be used for the baby. Fresh clean cotton or linen should be used for the baby's eyes, and after use should be burnt or destroyed.

What to do when the eyes get sore.—If the baby's eyes get red, if a drop of matter appears between the eyelids or in the corner of the eye, a physician should be called, or if none be in attendance the board of health should be notified by telephone, and a doctor will be sent to instruct the mother how to treat the baby's eyes.

Do not delay in procuring treatment for the baby's eyes, as the eyes can often be saved only by applying proper remedies at once. A heaping teaspoonful of boric acid (bought for a few cents in any drug store) may be dissolved in a tumblerful of boiling water, and the solution cooled. This boric acid solution may be used instead of plain boiled water to wash the eyes, while waiting for the arrival of the doctor.

On the authority of J. Whitridge Williams,⁴ of Johns Hopkins University, Cohn estimated, in 1876,



FIG. 5.—The Credé method of instillation (Edgar).

that thirty per cent. of the patients in the blind asylums of Germany, Austria, Holland, and Switzerland owed their trouble to ophthalmia neonatorum,

⁴J. Whitridge Williams, M.D., *Obstetrics*.

while twenty years later these figures had become reduced to nineteen per cent. Dr. J. J. Carroll, of Baltimore, stated that thirty per cent. of the inmates



FIG. 6.—Ophthalmia neonatorum (after Haab).

of the Maryland School for the Blind, in 1909, traced their blindness to the same cause, and that its incidence had increased rather than decreased during the previous twenty years. This means that the average practitioner and midwife have failed to appreciate the prophylactic value of Credé's method, and makes pertinent the inquiry as to the advisability of legislating with a view to making the use of silver nitrate compulsory in all cases.

These conclusions by such men as Garrigues and Williams and many other eminent authorities who might be cited, emphasize the fact that although, as has been shown, the cause of the disease and its prevention are now well understood, much remains to be done before the thousands of cases of preventable blindness cease to occur, even in our own country. The results just mentioned, which can be

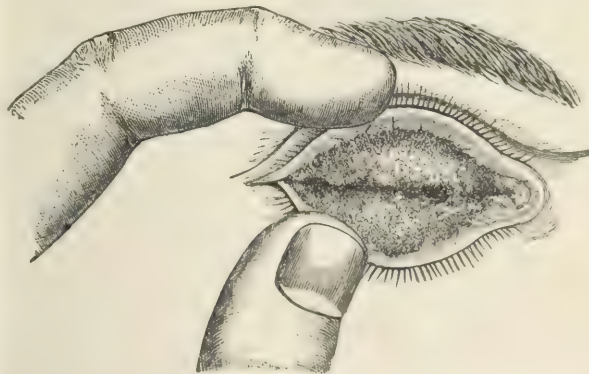


FIG. 7.—Everted eyelids in early stage of ophthalmia neonatorum.

duplicated by careful attention to correct technic in all well equipped hospitals, show that blindness of the newborn should eventually be reduced to less than one per cent. and ultimately should disappear, just as smallpox has practically disappeared in this country, and as typhoid has disappeared in the United States army.

Ignorance and carelessness are the two factors which continue to impose this burden of blindness upon the entire community. One of the most important duties of this society is to give accurate information as to the best means of the prevention of

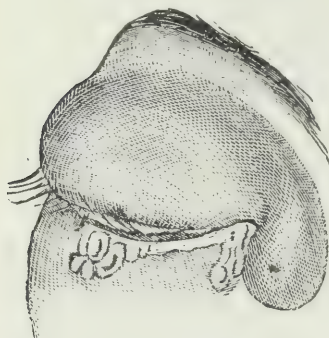


FIG. 8.—Gonorrheal ophthalmia (adult), swelling and excoriation of the lids, discharge of pus (Hutchinson).

this particular disease. Few of our members are physicians, but any member may, from time to time, see incipient gonorrheal ophthalmia in its early stages in a newborn baby, and many physicians are so situated that they must rely entirely upon their own resources in the treatment of this

disease, since competent oculists, though very desirable, are not always available, particularly in small cities or in the country.

Symptoms and course of ophthalmia neonatorum. The infection of the eyes takes place at the actual time of birth. As it takes a certain amount of time for the gonococci to multiply sufficiently to produce the characteristic inflammation, one or two days usually elapse before the evidence of their invasion is sufficiently pronounced to be recognized.

During the earlier part of fetal life the eyelids are united by their margins, and this prevents anything entering the conjunctival sac, but by the time the fetus is viable this union has disappeared. During labor the lids, as a rule, remain closed, but they may be easily separated, especially in face cases and those delivered by instruments. If they are opened during the passage of the head through the vagina, the vaginal secretions are sure to find entrance into the conjunctival sac. In the majority of cases, however, the lids are only separated after the head is born, and as the eyelashes and margins of the lids are covered with the secretions, the infective material then gains entrance. If in man, as in some of the lower animals, the eyelids remained closed for some days after birth, the risk of ophthalmia occurring would be exceedingly small. As it is, by careful washing of the lids as soon as the head is born, the risk of infection can be minimized.⁵

Moreover, cases have been reported in which pus was present in the eyes when the child was born. Even children born with a caul have shown gonorrheal inflammation at the time of birth. Jardine reports a case in which a child delivered by Cesarean section showed ophthalmia three days after birth. All of these cases, though rare, indicate that while a premature rupture of the membrane and dry labor undoubtedly favor the entrance of the germs through the uterine canal, it is possible to have true intrauterine infection with unruptured membranes.

In hospital cases and, more rarely, in private practice the eyes of one child are infected from the eyes of another. Infection from the mother's eyes is not an unusual occurrence.

⁵Robert Jardine, M.D., *Clinical Obstetrics*.

The characteristic symptoms develop in the following order: Great swelling and redness of the eyelids are first noticed. Soon a discharge appears. It is often of serum mixed with blood, not unlike bouillon in appearance. As the inflammation proceeds the discharge may be quite bloody, but, as a rule, it soon becomes profuse and purulent. The pus is of gray, green, or yellow tinge. The skin of the eyelids is often of a dusky red or bluish color. The conjunctiva of the lids at first is swollen and congested, but smooth. Soon this swelling greatly increases and a granulated or uneven surface results, due to the great exudation of the inflammatory products into the loose connective tissue (Fig. 6). Edema of the eyelids is sometimes present, but as a rule is absent in infants. Photophobia, pain in the eye, and a rise of temperature are commonly present. Very soon the conjunctiva of the eyeball itself is involved and becomes swollen in the same way—a condition called *chemosis*. The cornea itself appears to be at the bottom of a cavity formed by the swollen edges of this ocular conjunctiva. The discharge at this stage is serous or more often serosanguinolent. In very severe cases the exudate may be so great that the conjunctival vessels are compressed and the conjunctiva, instead of appearing red, looks grayish or yellow pink. A very free secretion of pus soon begins to form, the intense swelling and edema may diminish to a certain extent, and the skin on the lids appear wrinkled. The conjunctiva is soft and puckered into folds, the color deepens to a dark red, the surface is rough and velvety, and longitudinal folds appear in the region of the fornix. At this time thick yellow pus has collected in large quantities and oozes out of the palpebral fissure, or the edges of the lids may adhere to each other, thus allowing the conjunctival sac to be ballooned out by the accumulation of the secretion. This stage of the disease is the most dangerous for the nurse, and the dangers of the condition just described should be guarded against, since the pus is under considerable tension and may fly into the face of the bystander when it is suddenly released by the partial or complete separation of the lids (Fig. 7).

It must be remembered that the poison is equally virulent in children and in adults. My quiz master

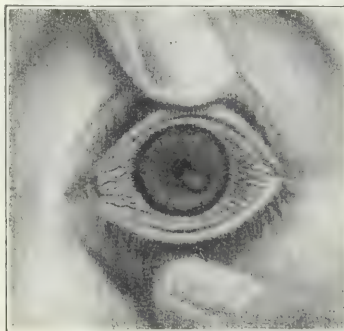


FIG. 9.—Beginning opacity and ulceration of the cornea.

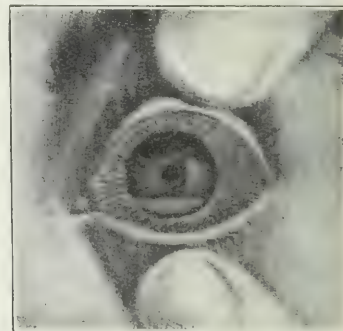


FIG. 10.—Infection of the eyeball from an ulcer with pus inside the cornea (hypopyon).

in the College of Physicians and Surgeons became himself infected in his clinic on the morning of December 24th, and by Christmas night, in spite of

the best medical skill and competent nurses, both eyes had been entirely destroyed (Fig. 8).

During this second or true gonorrheal stage, which may last for weeks, the cornea is in the greatest danger. The secretion, if not freely and continuously removed from the conjunctival sac, attacks the cornea. At first a small gray patch appears at, or a little below the centre of the membrane. This shows as an opacity on the front of the eyeball (Fig. 9).

This opacity increases rapidly in area, is soon converted into a suppurating ulcer which may spread over the entire surface of the cornea and lead to perforation. Even without perforation the germs may pass through the thin wall of the cornea and pus be produced in the anterior chamber of the eye itself, causing the condition known as *hypopyon* (Fig. 10).

If perforation takes place, usually at the base of the ulcer, the suppurative process invades the deeper



FIG. 11. Total blindness due to perforation of the eyeball and escape of its fluid contents.

tissues of the eye and gives rise to a virulent inflammation. If the perforation is a large one, the sudden escape of the watery fluid may cause the lens of the eye to be dislodged from its normal position and to be washed forward toward the opening, carrying a portion or all of the iris with it. In this case both the iris and the lens may become adherent in the new position and a variety of cataract be the result.

If, on the other hand, the perforation is very small and centrally situated, the cornea may be but slightly damaged, though central spots of scar tissue remain as evidence of the perforation. These resulting corneal opacities appear as white spots, called *leucomata*, which remain permanently and interfere materially with vision. They sometimes diminish in density in the course of time.

All of these accidents cause more or less loss of vision, but the most common cause of total blindness which follows this disease is the spreading of the ulcer over so large an area that when perforation takes place, the lens and the entire fluid contents of the eye escape, a general destruction of the eyeball occurs, and total loss of vision with extensive facial disfigurement is the final result (Fig. 11).

In older children and in adults the inflammation runs a more acute course. The swelling and infiltration of lids and conjunctiva are much more marked, and there is severe edema of the bulbar conjunctiva, the edges of the cornea being covered by the overhanging folds of the chemotic membrane. The corneal tissue is in constant danger of being eroded by the masses of pus accumulated under these folds, and marginal ulcers of the cornea are consequently more frequent in adults than in children. Their detection is often difficult, because they develop unseen under the shadow of the swollen conjunctiva. They are characterized by rapid spread, and often result in extensive sloughing of the cornea. Under certain conditions an ulcer may develop in the centre of the cornea.

In some instances where the infiltration in the palpebral conjunctiva, especially of the upper lid, is very great, the tissues assume a yellowish gray color, resembling a diphtheritic membrane. These cases are fraught with great danger to the cornea.

The virulence of this disease cannot be overrated. The entire course of the disease from the primary infection to the sloughing of the entire eyeball may occur within forty-eight hours. It is surpassed by but one disease as a cause of blindness, that is, by smallpox in countries where vaccination is not enforced.

Diagnosis and prognosis. At the present time an early and accurate diagnosis can easily be made. With the first appearance of a purulent discharge from the eye of a newborn baby, a minute drop of the pus should be collected on a microscope slide. With the edge of another slide this pus should be spread into an extremely thin smear across the slide first used. This is heated slightly to prevent its washing off in water and is then dropped for a minute into a solution of fuchsin or methylene blue. The gonococci are stained quickly, and the slide is washed and examined under a microscope. This bacteriological examination, with a confirmatory culture, is of great value also in forming an opinion as to the ultimate outcome of the disease. A mixed infection, due to the presence of streptococci or of the Löffler bacillus of diphtheria, increases the severity of the attack. While it is doubtless true that a few other microorganisms may give rise to purulent infection of the eye, it is far safer to proceed on the assumption that gonorrheal ophthalmia is starting and to begin suitable treatment at once than it is to be overanxious to find the exact name and nature of the bacteria and so lose valuable time.

The chances of recovery are somewhat more favorable in infants than in adult patients. If a newborn baby is seen early enough, there is every reason to expect that the eye can be saved if the proper treatment is employed, with two reservations—if the child is tainted with hereditary syphilis or is much enfeebled from other diseases, loss of vision is much more apt to occur. All authorities report cases in which both eyes have been lost in spite of the most energetic and painstaking treatment of the disease from its very onset. Even physicians in general practice do well to have the child placed at once under the direction of some competent ophthalmologist and under the immediate care of a nurse who has been particularly trained in the care of dis-

eases of the eye. So excellent an obstetrician as Hirst definitely states: "The author invariably refuses to accept the responsibility of treating such a case."

The ophthalmologist is not always immediately available and meanwhile valuable time may be lost. The course of the disease is so virulent and so rapid that the delay of even a few hours may result in blindness.

(To be concluded.)

THE NEW SPECIES IN THE HUMAN FAMILY.

BY DEXTER D. ASHLEY, M. D.,
New York.

The learned biologist classifies man as a plantigrade—a sole walker. Fashion and the shoemaker have made him (especially the female) a digitigrade—a toe walker. This is a transmutation, avoiding transition—an evolution by leaps and bounds, considered possible by Huxley (*Life*, I, page 173), though he gave no examples.

Most transitions in Nature are accomplished at a sacrifice in efficiency and, for a time, a proneness to deformity and disease of the part in question. We have an animal that should carry an upright body in standing and walking, as a plantigrade with a broad sole with three points of pressure, a tripod—the heel, outer side of the foot, and ball of the foot—when all too suddenly this tripod is superseded by placing the weight upon the anterior leg of the tripod—the anterior foot—and the assumption of the progression of the digitigrade. Can you wonder that Nature takes her toll in discomfort, subjecting the individual to a list of infirmities never experienced by primitive man? The mere mention of some of these infirmities should deter the transgressor, and warn him to lead the simple life if he would avoid pain, deformity, and impaired locomotion.

Digitigrade progression persisted in means weight bearing on the distal extremities of the metatarsal bones, with the phalanges projected upward (Fig. 1) at a sharp angle instead of extending forward. By continued stretching of the capsular ligaments, the sensitive synovial ends of the bones are uncovered and exposed to pressure. In many cases the joint becomes permanently, partially or totally luxated or dislocated, resulting in hammer toes or flexed toes of mild or severe degree, with corns on the toes and callosities in the anterior metatarsal arch (metatarsalgia, Morton's disease, or Morton's neuralgia), due to the crushing and thinning of the tissues and the giving way of the anterior arch, resulting in a broadening and thickening of the anterior part of the foot, with mild or severe hallux valgus,

bunions, overriding toes, clubbed toes, hallux rigidus or stiff great toe. The x ray shows a thinned bone cortex, increased cancellous tissue, a dumbbell atrophy of the proximal phalanx, distorted joint surfaces and bent bones. The great mass of muscles on the plantar surface—five layers of plantar flexors built into the arch—are almost functionless. Withered by disuse, crushed by braces and high, unyielding arches built in the shoes, we have seemingly lost track of these muscles in our mad scramble to brace, prop, and support the foot while walking on our toes. There is always a loss of the muscular control which is necessary to an elastic progression, ability to maintain an upright position and a good carriage, and strength to succeed in this strenuous life.

The entire anatomy of the part is affected. Weak ankles, loss of balance, fallen longitudinal arch, weak foot, strained foot, sprained foot, sensitive, painful foot, flat foot, rigid foot, elongated foot, pronated foot, abducted foot, and valgus foot are some of the terms designating the ills we bear and the price we pay for unphysiological walking and standing. These conditions are accompanied by swollen, puffy ankles, with referred pains in calf, knee, thigh, and back. Frequently there are severe intermittent cramps, preceded by numbness of the



FIG. 1.—Plantigrade foot at ten years of age. Inner line of foot is straight. 1, Great toe is but slightly bent outward. 2, Little toe has suffered more—pointed in and upward. 3, Joints clear, surfaces appear not in contact (normal). 4, Bone strong. 5, Metatarsals. 6, Phalanges.

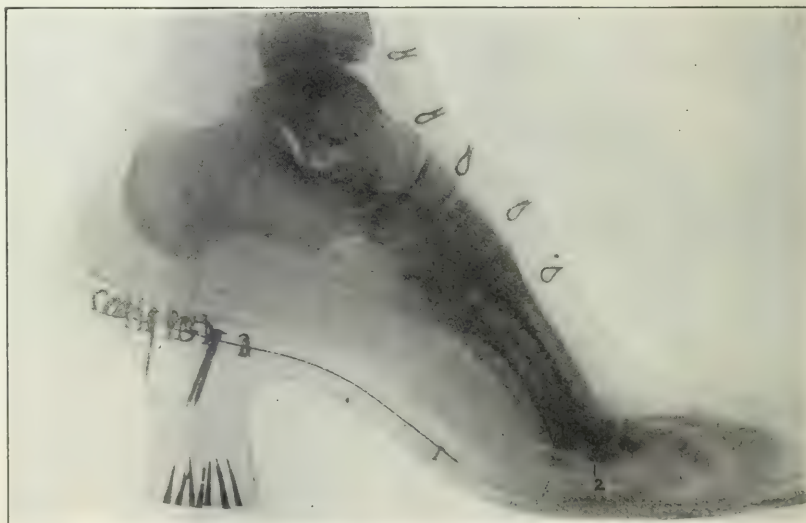


FIG. 2. Full fledged digitigrade. Girl twenty-one years old. Toes dislocated upward in shoe. Severe metatarsalgia and painful bunion.

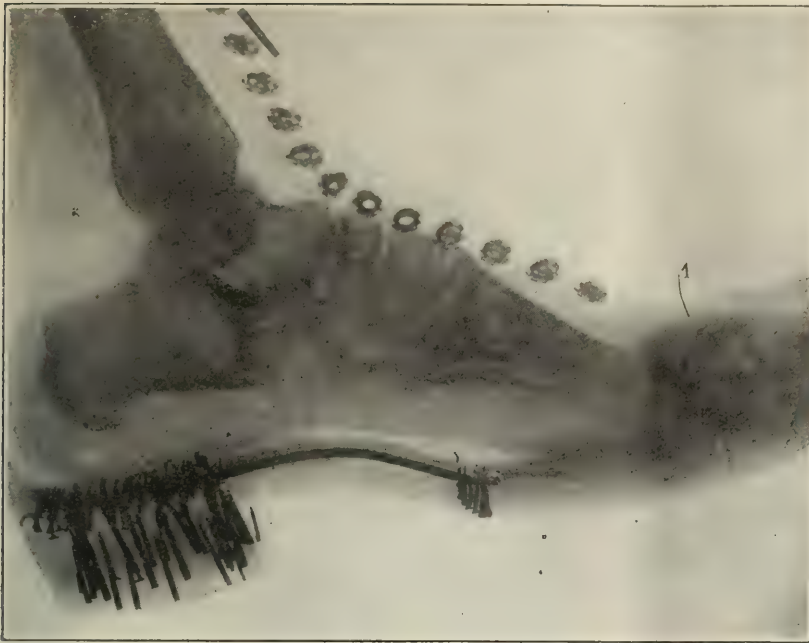


FIG. 3.—Deformed foot of woman twenty-eight years old, suffering from effects of digitigrade progression. Now wearing short shoe with heel considered by wearer to be very low. Heel of shoe extends too far back. Toes permanently flexed in position of hammer toe. Muscular control of anterior foot lost.

toes and a burning sensation referred to the anterior foot. There may be severe pain, so persistent as to break the spirit and constitution, make life a burden, and render the sufferer nervous and irritable to a degree.

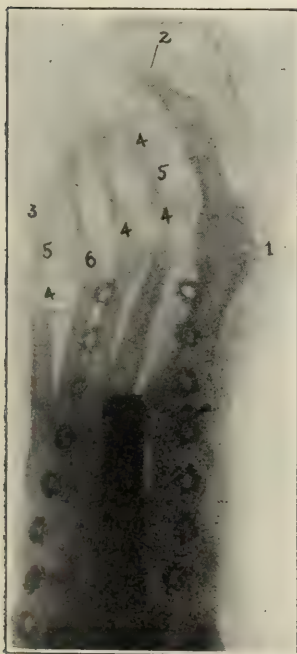


FIG. 4.—Same foot as in Fig. 3. Note narrow, short shoe crowding the foot. Patient suffers with painful feet and metatarsalgia. 1, Bunion well started. 2, Valgus or out turning great toe tending to overlap second toe. 3, Little toe crowding, overlapping fourth toe. 4, Joints indistinct due to thinning of bone. Location of metatarsal pain. 5, Dumbbell appearance of proximal phalanges.

This digitigrade progression is conducive to sprained ankles and broken bones. The tendo Achillis becomes permanently shortened, preventing the normal range of ankle motion and necessitating a pronated position of the foot, valgus great toe, and bunion, due to the unphysiological body thrust imparted to the foot. When standing in low heels or bare feet, these people often complain of a sensation of falling backward.

While bearing the discomfort of these diseases, what wonder that this digitigrade of the genus homo is sometimes cross or has nervous prostration! This individual is suffering with weakened, inefficient feet, deformed from long wearing of viciously planned shoes. If this toe walker stands little

and walks less, and is given a very high heel and pointed toe, wedging the toes forward and the arch ends nearer together, the strain upon the arch muscles and ligaments is relieved and the pain alleviated at the expense of the anterior foot. The result can only mean more deformity, more weakness, dependence upon the energy and endeavor of others. If a turn of the wheel of fortune should at any time call upon such a dependent to be a helper, a worker to sustain herself or others, she would be found to be a miserable cripple because of her abused feet.

A strong argument for the high heel and Spanish last is made by the shoemaker and bracer, and the laity in general, by pointing to the high arch seen in cases of short leg, after surgical procedure, and notably in old cases of hip disease, with partially flexed and adducted hips. These patients

walk on the ball with a marked equinus. They have a very high arch. When we examine the foot, we find it a sadly deformed extremity upon which the patient rests his weight for the shortest possible time, and then with a painful limp. The anterior foot is very broad and thick, the toes standing at right angle to the plane of the sole. When the patient stands, this foot is only a balancing prop, sus-



FIG. 5.—Product of vicious shoes and digitigrade progression in a woman twenty-three years old—the last stage, showing metatarsal crowding, dumbbell atrophy, bunions, dislocated proximal phalanx of great toe, flat foot with projecting scaphoid, and sesamoid bones displaced.

taining the minimum of weight. It would not be desirable to have two such feet.

That walking with an elastic step is the most invigorating exercise that can be indulged in by old and young is almost an adage—a recreation that is impossible of indulgence after wearing improper shoes, as practised by a large proportion of our civilized population. The old European custom of making long tramps afield, along paths through woods and over hills, with friends and family, is hardly known in this country, the dusty or muddy roads offering to the pedestrian the only and uninviting avenue to the country. When we are there, we find no paths leading to the woods. We are a riding nation. Walking for exercise cannot find favor with our stilted digitigrade, or be performed with the joy of living by one whose toes have lost all power.

The writer does not wish to give the impression that digitigrade progression is the cause of all the ills attributed to the feet, though it is a causative factor in many. The automobile, the electric street car, and the hard sidewalks, combined with non-physiological footwear, will surely leave their mark more and more upon our physical development and efficiency as workers, when standing and walking are necessary. The hope of something better must rest with the teachers, the thinkers, the workers, the laborers, from whom emanate the wellsprings of a forceful civilization. Where the child is concerned, the mother's love for physical perfection in her offspring generally is paramount to all ideas of fashion or false gentility, though she may be weak and foolish in her own dress. The broad toe and spring heel do not offend the eye when worn by the child. Why should not the adult, as well, wear them? Only fashion dictates, No! Comfort and common sense should command. As remarked by a sensible woman, "no one who has experienced the solid comfort of walking and working in physiological shoes will ever afterward be a slave to fashion."

346 LEXINGTON AVENUE.

GASTROINTESTINAL RADIOGRAPHY IN THE TRENDELENBURG POSITION.

BY SINCLAIR TOUSEY, A. M., M. D.,
New York.

The value of a radiograph made in the Trendelenburg position after five minutes in the knee chest position in addition to one in the standing posture, was suggested to the author by Dr. W. P. Healy. The expectation was that such a picture in the Trendelenburg position would give better information of the position in which the movable parts of the gastrointestinal tract would be found at operation than a radiograph made in the standing position with every movable part sagging downward from the weight of its bismuth contents. I have applied this method in a number of cases referred to me by Dr. Robert Coleman Kemp, some of them cases in which Doctor Healy was the attending surgeon. This comparative method proves to give information of the greatest value.¹

¹The simple Trendelenburg position had already been used by radiographers.

The standing picture shows the shape and position assumed by each of the bismuth filled portions of the gastrointestinal tract under the influence of gravitation toward the patient's feet. Some portions



FIG. 1.—Standing, after bismuth meal.

may be held up by adhesions or other lesions, in a position which is abnormal for the erect posture. The inference as to fixation may be corroborated, or may require correction when we come to examine the Trendelenburg radiograph and note the relation of the affected part of the stomach or intestine to the umbilicus or to skeletal landmarks and also to other parts of the gastrointestinal tract.

There may be portions which sag abnormally in the erect posture, indicating probable benefit from supporting belts, provided that the Trendelenburg picture shows a return to the normal position.

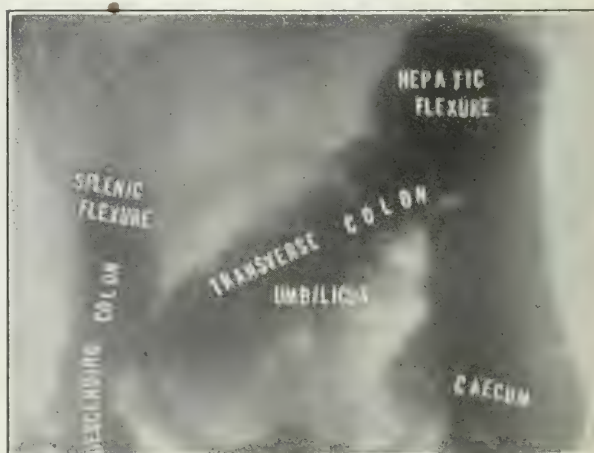


FIG. 2.—Trendelenburg position after enema and five minutes in the knee chest position (Healy's method).

Coming now to the Trendelenburg position with the pelvis higher than the shoulders, we find the bismuth filled portions of the gastrointestinal tract as far toward the patient's head as they would be

found if an operation was performed. There is a certain normal picture in this position differing, of course, from that in the erect posture. There is the strongest tendency for the gastrointestinal tract to assume this normal position, unless some portion is fixed in an abnormal position by adhesions or some other lesion. A glance at the two pictures is usually sufficient, as in Figs. 1, 2, and 3 (a case referred by Doctor Kemp), to reveal the site of any abnormal fixation of the gastrointestinal tract.

We now come to the relation of this information to the question of operation, in cases where the combined methods of radiography show fixation of some part or parts of the gastrointestinal tract in an abnormal position by adhesions or some other lesion. If the radiographs or the symptoms show that there is sufficient angulation to cause serious obstruction,



FIG. 3.—Radiographs after enema; comparison between the standing (heavy outline) and the Trendelenburg (light outline) positions. A, Splenic flexure. B, Hepatic flexure, Trendelenburg. C, Hepatic flexure, standing. D, Transverse colon, Trendelenburg, fixed at its left extremity in the same position as when standing, demonstrating an adhesion there. E, Umbilicus. F, Transverse colon, standing. G and H, Sigmoid and rectum.

or if the symptoms are sufficiently severe and resistant to treatment, an operation is to be considered. In some cases the application of the x ray and of high frequency currents from glass vacuum electrodes exhausted to the ultraviolet degree, cures intestinal adhesions. In few if any cases presenting the fixation described, can a spontaneous cure be expected, but there are many cases where this abnormality may be safely let alone, and there are a few in which operative treatment is followed by fresh adhesions and a condition fully as bad as before. In many severe cases an operation yields splendid results.

850 SEVENTH AVENUE.

Amebicidal Value of Emetine and Ipecacuanha.

—R. Markham Carter, according to the *Journal of Tropical Medicine and Hygiene* for May 15, 1914, states: Emetine in liver abscess is of doubtful value.

RED CROSS PROBLEMS IN TIME OF WAR.*

Suggested by Experience in the Balkan Wars.

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The rude awakening of Americans to the realization that the Armageddon of Europe has begun, although they have always confidently assured themselves that this great catastrophe has been positively interdicted by some sort of a beneficent power which they call "modern civilization," must arouse their sense of obligation to the cause of human suffering which so soon will follow in incalculable measure.

As charity begins at home, we are at present naturally occupied with the care of our immediate economic interests, and are desperately struggling with the international complications which lie in the way of our appropriating to our own advantage the great misfortune into which all Europe has been so suddenly plunged. Along with the virtues with which the American people consider themselves so abundantly endowed, they have also made a reputation throughout the world for holding their commercial interests above all else, and for a careless disregard of the finer social instincts. This reputation seems in a fair way to be considerably enhanced, if there is no ready response, generous in proportion to our wealth, to the present call from the American Red Cross for aid for the hapless victims of this great war.

Practically all the nations of the world are signatories of the Geneva Convention, which has had for its first high purpose the amelioration of the sufferings of the sick and wounded in time of war. It guarantees to the personnel and matériel devoted to their succor, all the protection and assistance of the combatant forces, not inconsistent with the practice upon which the strength of arms is determined. Upon the terms of the Geneva Convention the great countries of the world organized national societies, which all Christian nations have named Red Cross, and the Mohammedans, who could not accept the emblem of Christianity, Red Crescent.

If it is vague prating to affirm that there is a difference between matters American and European, it is surely not so to assert that there is a variance between the American and European conception of the functions of a Red Cross society because some very definite illustrations are at hand. We are new and strong and may be original and need to concede nothing to any people in the loftiness of our aims, or in the purity of our principles. But we are also inclined to ease our way along on the optimism of sentiment, while the less buoyant people of older civilizations, who have already passed through several national generations as we are just coming into our adolescence, are more stolid and accept, without optimistic anodyne, the bare revelations of cold facts. Our Red Cross society is prepared for and it efficiently renders aid in any civil distress, while theirs is organized for and is an adjunct of war.

It is true that, in this country, there are statutes

*Published by authority of the Surgeon General.

and regulations which prescribe the principles upon which the army and the Red Cross society may be affiliated in time of war, but on the Continent of Europe these societies consist, practically, of or-



FIG. 1.—Stabsarzt Reber, Sanitary Corps of the Austrian Army, in the Bulgarian sanitary service.

ganized units with military functions as definitely defined as have the field hospitals or transport columns of an army. They perform a large part of the sanitary service which gives professional attention to the sick and wounded, behind the zone of operations, from the evacuation stations to the base and to the final points of distribution.

The Germans have, perhaps, the most perfect volunteer aid system, and it is to their development of the orderly relations between the military and Red Cross organization to which I particularly refer. At the head of the German Red Cross society is an Imperial Military Inspector of Volunteer Aid, who is appointed by the Kaiser to hold his office in time of war as well as peace. When war occurs, this functionary leaves his office in charge of assistants and joins the headquarters staff of the Commander in Chief in the field, whence, in association with the Director General of the Line of Communication and Railways, he directs the Volunteer aid units.

The German society, with its direct object of rendering aid in time of war and with its established relation to the military establishment, definitely worked out with characteristic thoroughness, is, no doubt, the most efficient of all. It is only possible, however, to develop a volunteer aid society in this systematic way in a country where the whole civil administration of the State is arranged to take a part in the military organization in time of war.

The English, on the other hand, even after their lesson of the Boer war, in which they saw the need of reorganization with a view to rendering aid in time of war, are still without an efficient system in this respect. Her Majesty, Queen Alexandra, in her inaugural address at the meeting called for reorganization, in 1905, said: "It has been on my mind ever since the South African war, when I became president, to try to reorganize the Red Cross society on a more practical and sound basis." But the English still retain their traditional attitude to-

ward preparation for war, as they are the only people in Europe who, like us, are free from the hated tyranny of military conscription. A British observer lately confessed that he is overwhelmed as he learns what is done on the Continent in the preparation of volunteer aid in time of war.

The British Red Cross Society possesses a certain capital, said to be about \$400,000, accrued from various absorbed organizations and subscriptions, which can be touched only in case the Empire is involved in war. The interest alone is used for the maintenance expenses. Any relief work in time of peace is carried on only by the use of subscriptions made for the particular purpose. When foreign nations are at war, the help that is sent from England to the combatants is raised by special subscription, as in the case of the several units sent to Turkey and the Balkan States during the recent wars.

The French Red Cross Society consists only of a central committee, formed by Government sanction in 1907, under control of the war office, and composed of delegates from the three active volunteer aid societies which had been previously chartered by Government decree, namely:

1. La Société de secours aux blessés des armées de terre et de mer.
2. L'Union des femmes de France.
3. L'Association des dames françaises.

The first had twenty-five field hospitals of 100 beds each, completely organized with matériel and personnel ready for immediate service. It has organized hospitals of other classes with a total of 18,000 beds, an annual income of \$100,000 and a reserve fund of \$1,300,000. The second has twenty auxiliary field hospitals of 100 beds each, with personnel and equipment exactly similar to the field hospitals of the army; 12,000 beds in territorial hospital organizations, and \$720,000 in reserve fund and matériel. The third has six auxiliary field hospitals, 7,000 beds in hospitals of other classes, an annual income of \$20,000, and a reserve fund and matériel valued at \$210,000.

La Société de secours aux blessés has undertaken, in an extensive way, to train the volunteer aid personnel for service in time of war by the establishment of dispensary schools, of which there are three



FIG. 2.—A Bulgarian medical officer loading an Austrian army sanitary train at Kustendel, Bulgaria, during the second Balkan war.

in Paris and thirty-five throughout the country. Ladies attend these dispensaries and many of them, both from the provinces and in Paris, after completing the dispensary course, enter the civil hospitals

in Paris for a course of five months, and, after a final examination, receive diplomas. The total membership of these societies is 111,000, and each member subscribes two dollars or more each year.



FIG. 3.—A standard car of an Austrian Army hospital train awaiting its load of Bulgarian wounded for transportation to Sofia. An Austrian army hospital train complete with equipment and personnel was sent to Bulgaria during the first war, and another during the second war.

The personnel of the organizations, except for a few administrative medical officers of the army, is made up of those exempt from military duty, and thus many of the unemployed men and more of the women are enlisted in the volunteer aid service in France.

The Italian Red Cross Society, reorganized in 1882, has its objects thus expressed by royal decree:

1. To supplement the army medical service in the field by means of mountain and field hospitals;
2. To provide hospital trains for lines of evacuation;
3. To provide rest stations;
4. To coordinate the work of other societies in time of war;
5. To collect and distribute private gifts under army direction; and
6. To organize information bureaus for communication with the families of the sick and wounded.

This society has among its completely organized units, sixty small field hospitals for mountain warfare, eight war hospitals of 100 beds each, eight field hospitals of fifty beds, thirty-six field hospitals of fifty beds for pack transport, fourteen hospital trains of 200 beds, one hospital train of 100 beds in Sicily, two sets of equipment for hospital ships, one set of equipment for a river ambulance, and sixty-five rest stations. The funds amount to \$1,400,000, and 1,900 officers and 2,000 subordinates are assigned to duty in various organizations.

The Austrian Red Cross Society is a union of twenty-two National aid societies, organized at different times and places since 1859, and controlled under the direction of the war department, by a central committee in Vienna. The society has a membership of 109,500, an annual income of \$190,000, and material valued at \$330,000. The relation of this society to the army medical department, in time of war, is established along the lines laid down by the Germans, and it furnishes the following organized assistance: All the first aid dressings for the army; wounded transport columns; mobile field depots; field hospitals; field delegates, medical officers, pharmacists, and accountants; supplementary personnel, clothing, and equipment; depots for vehicles in Vienna and provincial towns; equipment for mountain warfare; publication of service in-

structions; central bureau of information; reserve and auxiliary hospitals; hospital ships; rest stations; nursing organization for private houses, and courses of instruction for volunteer aid personnel. The total number of beds in completely organized hospitals and convalescent homes is 14,424. All arrangements are perfected for the charter of two particular vessels, for conversion into hospital ships, and all supplies and equipment for these two ships are provided and are kept in permanent storage in the garrison hospital in Trieste.

The central bureau of information is of particular interest, as it is the most complete and efficient organization of the Austrian Red Cross society. It collects lists of sick and wounded from all the medical units and establishments, classifies them, and makes card indexes of each individual, transmits desired information to relatives, and answers all communications from them.

The Hungarian Red Cross, which is entirely distinct from the Austrian society, is organized under the same supervision and advice of the military authorities. It provides wounded transport columns for each of the eleven field hospitals of the army, which are mobilized in Hungary. It has ready for mobilization ten bearer columns equipped for mountain transport; two field hospitals of 200 beds each; two mobile field medical depots; and eight reserve hospitals with a total of 2,000 beds. At Budapest the society has an active hospital of 120 beds in permanent operation, with ward buildings on the grounds, filled with stores in time of peace which provide for extension to 800 beds in time of war. It has, also, organized rest stations, refreshment stations, auxiliary hospitals, and convalescent hospitals and homes throughout the Kingdom, providing for 42,545 officers and men.

In Russia all volunteer aid is employed under the control of the Red Cross Society of Russia, which



FIG. 4.—The military surgeon of the Austrian army, in charge of the Austrian Army Hospital train in the Bulgarian service, and an Austrian Army Hospital Corps soldier dressing the wounds of a Bulgarian soldier.

was organized in 1876 from societies formed in the Napoleonic and Crimean wars as more or less of a State institution. The story of its preparation in time of peace for service in time of war is much the

same as that of other European countries. The society has a membership of 1,000,000 and a war fund of \$5,000,000. It expended \$20,000,000 in the Manchurian war, and has since that time renewed its energies in organizing units and perfecting arrangements for volunteer aid in the military service.

The smaller States, Belgium, Holland, and Switzerland have taken even more seriously the organization of volunteer aid units for service in time of war; and resting, no doubt, in fancied security behind their paper bulwarks of neutrality, they prepared more thoroughly than the larger States to send well organized units to foreign countries.

In Holland, for instance, the objects of their volunteer aid society, as set down in the charter by royal decree, are:

1. To afford assistance to the sick and wounded belonging to any belligerent armies or navies; and
2. To render assistance in times of calamity at home or abroad.

The Belgians have formally considered the manner in which the foreign assistance offered to them might be received and have prescribed the conditions under which the Red Cross society shall aid the army in time of war in the following article of the royal decree of 1892:

Foreign Red Cross Societies cannot give aid in Belgian wars, except by special authority of the local commanding general and under the direction of the Belgian Red Cross society. They may never aid in the first line.

As the antimilitary spirit of our people, grown from our isolation, incites our disavowal that a state of war can ever confront us, we strive to entrench ourselves in this position by making the least possible preparation for the strengthening of our arms, and it naturally follows that we have but little interest in the useless expenditure of time and money to prepare for the amelioration of its deplorable results.

There can be no doubt of the deep sympathy of the American people with the unfortunate victims of the terrible reality now involving almost the whole of Europe, or of their earnest desire to offer such measure of relief as they are able. Then the question naturally arises, In what form, to what extent, and to what effect should our well meant efforts be directed? The answer may be found, either in following our own traditions and easy convenience in the selection of a plan to meet this great emergency, or by carefully considering the form in which the European states have sent aid to other countries in time of war, and deducing therefrom the kind of aid that would bear the most relief at this time. In other words, shall we give only what is easiest to hand out, or shall we offer what our prospective beneficiaries can best use and most want? It is a foregone conclusion that we will try to do what we can, and that we will spend our money, but will our assistance really help or will our means be consumed in the overhead expense of our well meant efforts?

We have long since been wisely admonished to turn not too readily to the devices of our own invention before consulting, with humility, the experience of the past, and some of the latter may, possibly, be found in the methods employed by the nations of Europe in sending their volunteer aid to Turkey and the Balkan States in their late wars.

When Turkey was at war with the Balkan Allies, much assistance was given, in Constantinople, by organizations from foreign countries. A German Red Cross unit arrived eighteen days after the war began, with a personnel and equipment for a complete hospital establishment. The party was uniformed and provided with facilities to shelter and to sustain themselves and to maintain their patients for a few months.

The English sent three organizations, one from the British Red Cross and two under the name of the British Red Crescent. The latter was managed and financed by The Right Honorable Ameer Ali, a distinguished and wealthy Indian Mussulman in London, who, in the spirit of the Mohammedan nations signatory to the Geneva Convention, chose Red Crescent as a more appropriate name for his Mohammedan relief mission. Both these organizations were completely supplied with staff and material to establish hospitals, with the money to pay the incidental expenses, and to subsist and support in every way such patients as they might receive.

The Dutch unit came with a most carefully selected outfit, which included specially constructed folding hospital furniture, a particularly liberal supply of hospital clothing, and all sorts of compressed and condensed foods, selected with great care and specially packed for the field. This party wanted to go into the field, but it was assigned its function in a military building where it settled and asked for no assistance in caring for the wounded of the people they had come to help.

The Swedish Red Cross was represented by a military field hospital of the regular Swedish army, commanded by a captain of the medical corps of the Swedish army. This unit came prepared to support itself in every way and had to ask only for location, and for patients.

The Austrian party came with a personnel consisting of a major of the Austrian medical corps, a civilian surgeon and a dozen nurses from a religious order. They brought a complete operating room equipment and other supplies which permitted them at once to take independent charge of 100 beds in an improvised Turkish military hospital.

The Belgian unit was sent out in charge of Professor Depage, Belgium's most distinguished surgeon and the professor of surgery and chief surgeon of the hospital of the University of Brussels. He brought from his hospital his operating staff, including three assistant surgeons and six English and Dutch trained nurses, and a most complete outfit of instruments, appliances, and supplies for a surgical service. This unit assumed the entire professional care and administration of 120 beds in an improvised military hospital which furnished only rations, and he supplied, as well, large quantities of surgical material and dressings to the Ottoman Red Crescent society.

The Roumanians sent a unit which was able to set up a complete hospital in a building provided for them.

Mussulmans in India sent two Red Crescent units, each with complete field hospital equipment. Both pitched their hospital camps along the line of rail communication between Chatalja and Constantinople and cared for their patients without dividing the

responsibility with the Turkish military administration.

One Egyptian unit, in command of a colonel of the medical corps of the Egyptian army, established a hospital at the base of the advance line of defense, and it was in position one week after the line was in action. Another Egyptian party, hurriedly organized for immediate service, arrived in Constantinople three weeks after the war had begun, with an outfit which made up the cargo of a 4,000 ton ship. This matériel included rations for 5,000 men for two months, and beds, bedding and clothing for 1,000 patients, and among other details, there were two complete pathological laboratories, with two pathologists and a skilled mechanic for installing apparatus, which had been requisitioned from Berlin. Beside an elaborate administrative and professional staff, 200 men servants and laborers were included in the personnel. An ample supply of funds provided means for erecting temporary buildings, making purchases in the local market, employing labor, and for other contingencies. Three hospitals were established—one in the cholera camp at San Stephano, one on the Bosphorus, and the other on the Asiatic shore of the Marmora. The Egyptians were thus able to accomplish more than any other group of foreigners, because of the great amount of material and money they brought with them.

As an instance, on the other hand, of the difficulties which lie in the way of the successful management of a volunteer aid party, sent on a mission to a foreign country, I may cite the experience of one unit which arrived in Constantinople after its offered assistance had been refused in another city. There is no doubt that there was need for this party there, but neither the military nor other administration in the city was able to isolate any work for this mission, and so it was easier to refuse than to accept and employ the proffered service. This mission had been organized in a careful businesslike manner by making contracts for term of service and salary, and by providing personal outfits and uniforms for the staff, and supplying a complete hospital equipment, a maintenance fund, and a disbursing agent. The personnel consisted of four doctors, six orderlies, two female nurses, and four male nurses and four cooks, locally employed. Not one of the party, however, had ever been in camp or had had any experience in other than a regular city hospital; yet they undertook to erect and conduct a camp hospital and to attempt ambitious surgery. After a ten days' struggle in the rain and mud, without getting so far along as establishing a mess for their patients, who were meanwhile fed by a near by organization, the camp was abandoned, and the surviving patients were moved into the shelter of a building which was available from the first.

The American Red Cross hospital work was organized in Constantinople under rather peculiar conditions, as neither personnel nor matériel was sent from the United States. The local chapter of the American Red Cross under the most efficient direction of Mr. Rockhill, the American Ambassador, secured some funds from the National society and more from individual Americans at home and abroad.

I happened to be in Constantinople and was placed

in charge of the American venture, which took over a part of the service of the Tash Kishla hospital, improvised in an old barracks and consisting of patients, their beds, and their straight soldier rations. Our supplies were purchased from the local market and no assistance except ward labor was asked or received from the central hospital administration. On the other hand, we were able to furnish some sorely needed assistance to the central hospital administration by some personal direction and the purchasing power of our funds. But had our relief party entered Constantinople without matériel and without money sufficient to conduct an independent self supporting unit, our pleadings and entreaties for an opportunity to give our personal assistance would have been made in vain. As it was, it took the persuasive presence of our ambassador and the potential influence of our Embassy to overcome the administrative inertia we encountered in seeking a place to work, yet in no other capital in Europe is the implied wish or expressed desire of an Ambassador so readily and fully respected as in the Ottoman Empire. I cite our personal experience to emphasize the peculiar situation which permitted the practice of economy with practically no overhead charges. There were no travelling nor subsistence expenses, and only small salary payments were made to the locally employed medical and nursing staff. Over 500 hospital patients were cared for during our service, covering period of six months, at a cost of about \$5,000, or approximately ten dollars each. Much of this money was applied to the purchase of clothing, as every discharged patient left the hospital with new shoes, and generally with other pieces of apparel. All the purchases and disbursements were made from the chancery of the Embassy, under the personal direction of the American ambassador, Mrs. Rockhill, to whose splendid executive ability and devoted attention were due the efficiency and economy of the business administration.

The situation in Bulgaria, during the second war, was much the same as it had been in Constantinople so far as the supply and demand of foreign volunteer aid missions was concerned, except that Bulgaria profited by her experience in the first war, when foreign Red Cross units were permitted to go toward the so called "front." An officer in the sanitary service of the Bulgarian army, in a position to know, told me that it had been a great burden to his department to give the care to some of the foreign units which they required and that, while he and his people were deeply grateful for the sentiment expressed by the presence of foreign missions, he felt that his sanitary department might have extended some of its scanty resources a little further if they had not felt constrained to divide them with some of the well meaning foreign volunteers.

In the second war, the Bulgars were sure enough of themselves to keep all the volunteer organizations in Sofia where their services were greatly appreciated, if the units were prepared independently to receive and care for patients. The surgeon general of the Bulgarian army told me that the cause of his greatest distress was not so much the lack of instruments and dressings or of doctors and nurses, as it was the need for suitable diet for the sick. He

needed condensed milk and liquid foods more than personal assistance, and the need grew greater as the war progressed, because of the country's commercial isolation. While this actual suffering from a dearth of material was the experience of only a small impoverished State with primitive resources and with no industries to supply her own fabricated products, which had to be imported, it may be regarded with little comfort by any country, however confidently it counts its wealth and views its resources.

The disorganization of highly developed commercial and industrial systems, in time of war, may plunge the greatest nation in the world into a state of disorder that may bring her people to starvation. Therefore materials are always in greater demand than personal assistance, and when both cannot be given, it should not be difficult to choose one which will give the most relief and be most gladly received.

There was a carefully organized and completely equipped British Red Cross unit in Sofia commanded by a Major Birrell of the British Army Medical Corps, which, after being located in a suitable building, received and cared for patients without any assistance from the Bulgarian administration.

Two Austrian Red Cross hospitals were established in Sofia, each with a personnel from the medical corps of the Austrian army and nurses from a religious order. A fully equipped and provisioned Austrian army hospital train, with complete hospital corps personnel in command of a Major Reber of the medical corps of the Austrian army, was in the Bulgarian Sanitary Service. Beside this, four Austrian medical officers were detailed to duty with hospitals in the field.

A Bohemian mission, in charge of a clever civil surgeon, Doctor Bourian, the chief of the surgical clinic of the University of Prague, brought an abundance of material for conducting a competent surgical service in a hospital established in the military academy in Sofia.

A German Red Cross mission took over the service of an established hospital, leaving the entire Bulgarian staff free for other duty, and two medical officers of the German army with a Bulgarian staff conducted a well arranged cholera hospital.

There were also in Sofia, during the second war, quite a number of European doctors, who were serving, in some instances, as personal volunteers, although the majority of them were receiving pay from the Bulgarian Red Cross. Bulgaria is a primitive country with no medical school and few doctors—only 650 doctors to 4,250,000 hardy inhabitants. The Bulgarian State Hospitals had produced a few nurses with some training. Doctors were needed and the Macedonian cry had been sent out for them, as well as, though less loudly, for nurses. When the Bulgarian queen gave dignity to the nurse's uniform, every woman in Bulgaria was ready to wear it. They were all Red Cross nurses; many good, some indifferent, and few bad—at least bad enough to necessitate some eliminating process. To this end the queen started an organization of her own, under her personal direction and supervision and apart from the National Bulgarian Red Cross Society. She was then able in the second war to overcome some of the defects of the volunteer nurs-

ing system which had arisen during the course of the first war.

Every highly civilized and developed country has its quota of trained nurses, which fairly meets the demands of its civil hospital system, although the number may never be expected to occur with such frequency that their ratio to patients, in time of war, will meet the standards of times of peace. But this condition may bring but little real and substantial neglect to the sick and wounded soldier, for he seldom, if ever, suffers in his own country from the lack of a volunteer personnel, willing and fairly competent to help him. The disturbance of civil order and the military engagements of the men will always release from other employments a sufficient number of competent women from which to recruit the nursing service to sufficient strength, if only the proper means for their occupation are at hand. The woes of the soldier never rest upon the numerical deficiencies of nurses when there are matériel, organizations, and administration to permit their activities. The great and never wholly superable difficulties that lie in the way of the soldier's succor are so much dependent upon matériel that the factor of personnel is almost inconsiderable. There is never much trouble in doing, when the things to do with are available. Even in poor primitive Bulgaria, there was not so much the need of nurses as there was for the matériel, organization, and administration necessary to their proper employment.

There is a great delusion in the romantic fancy which so unhappily prevails, not only among the enthusiastic and untrained volunteers but also among those who may direct their worthy efforts, that the Red Cross doctor and nurse go on the field of battle to carry their gentle ministrations to the wounded. All organized armies have a sanitary service, the product of careful professional study and practice, which cannot be effectually supplemented within the zone of action, even by organized and trained volunteer units. There is even no place in the line of communication or at any place in advance of the military base, for a volunteer aid service which has not been organized and trained, and which has not formally been incorporated into the sanitary organization of the army. The victorious army of a Villa, with its commissariat of vivandières, naturally must have a sanitary service in the same keeping, and, of course, in as little order; but the armies at war in Europe today have carefully organized sanitary departments upon which they rely for all their medical needs in the field.

The lure of the so called "front" awakens the spirit of adventure and romance, tempered by the love of country in the soldier and by the love of humanity in the nurse, but while its inspiration in the former gives strength to battle, its suppression in the latter insures the greater efficiency. Nearly all the Red Cross missions that came to Constantinople expressed a desire to go to the front, but not one of them possessed the organization, training, and equipment essential to the mobility required for such service. Some units may have had the requisite trained personnel and sufficient matériel to sustain themselves in a permanent position, but all of them were without transportation and some of them were without subsistence. To have provided these volun-

teer units with the transportation and subsistence necessary for their field service by a draft upon military resources, would have occasioned a loss to the army for which there could be no commensurate gain. It is difficult enough, at best, for a neutral volunteer aid party to avoid excessive expenditure and to render any substantial assistance to belligerents, without a trained, self sustaining, and well financed organization, and it is still more difficult even when its services are performed in a base hospital.

The intensely practical side of this situation, which may first move us deeply in a sentimental way, will be suggested by a few details of the preparations that have to be made for a medical service in the field. A field hospital of the United States army, for 200 patients, which costs the Government \$5,000, weighs 16,000 pounds, provides for only the bare necessities of medical, hospital, and cooking utilities, without beds, except sacks for straw, and without food. The tentage for 200 patients and the staff of five medical officers, nine noncommissioned officers, and forty-eight men, costs \$2,000. Beside this, there are eight four mule wagons required for transportation. As a garrison ration for one day for an American soldier, weighs six pounds, uncooked and unpacked, the food for a field hospital for a day would weigh 1,000 pounds, and for a month, 30,000 pounds.

As an example of a volunteer relief organization, we may take a 100 bed hospital unit of the Italian Red Cross Society, which is called a "war" hospital to distinguish it from the military unit or "field" hospital of the same capacity. The personnel consists of one director, four doctors, twenty-two nursing orderlies, a chaplain, a pharmacist, and an accountant. The equipment includes twelve tents, two for personnel, ten for patients and transport material. All the supplies are packed in a prescribed way in a definite number of boxes. A rate of pay for active service is established for the personnel in all ranks.

Although these illustrations have been already tediously extended, I will venture a final account of a volunteer aid mission, which includes an outline of the organization and an accurate financial statement. With the hope of securing reliable data covering the organization and cost of the foreign volunteer aid missions in Constantinople, I prepared a blank in English and French, upon which the desired information is indicated, and sent a copy to nearly all of the missions in Constantinople early in 1913 with a request for their considerate attention. The only reply received was a carefully prepared statement from The Right Honorable Ameer Ali, president of the British Red Crescent Society in London which, summarized, is as follows:

I. THE FIRST CONSTANTINOPLE UNIT; ARRIVED NOVEMBER 3, 1912.

Personnel:

One director (retired English army officer), two surgeons, six nurses, three dressers, four orderlies.

Matériel:

Operating room equipment complete.

Field equipment; sixty-four mattresses with blankets and linen.

Hospital furniture; ward equipment and clothing for each patient. Tents; sixteen, including two special French kitchen tents, all with ground sheets.

Kitchen equipment for cooking; separate sets for staff and patients.

Food for sixty patients for three weeks.

Total shipping weight seven tons, in 139 packages, exclusive of food.

Expenses:

Transportation of matériel	\$700.00
Transportation of personnel	1,650.00
Salaries of personnel for five months	5,500.00
Matériel	4,500.00

Total\$12,350.00

2. THE SECOND CONSTANTINOPLE UNIT; ARRIVED NOVEMBER 24, 1912.

Personnel:

Four surgeons, two orderlies; dispatched later, six nurses, two orderlies.

Matériel:

Complete field hospital of sixty beds.

Food for sixty patients for three weeks.

Total weight seven tons, exclusive of food.

Expenses:

Transportation of matériel	\$1,500.00
Transportation of personnel	1,650.00
Salaries of English personnel for five months	2,600.00
Matériel	7,400.00

Total\$13,150.00

The director of the Dutch Red Cross in a personal interview gave me the following data relating to his unit:

Personnel:

Five doctors, five male nurses, five female nurses, two orderlies, and six locally employed servants.

Matériel:

Hospital equipment complete, including beds for 100 patients.

Food for 100 patients for six months.

Expenses:

No itemized statement, but value of matériel and funds expended amounted to\$35,000.00

For two weeks before its own kitchen was in operation, the Dutch mission paid a Turkish hospital, in an adjoining building, thirty cents a day for the subsistence of each patient in the Dutch hospital.

There is no unfavorable criticism, expressed or implied, in this comparison of our own Red Cross organization with those of Europe, any more than there would be in a comparison of the respective military establishments. It seems to be evident that other countries have made serious, consistent and organized preparation for military relief work, while we have not concerned ourselves with its essential details. However disappointing it may be to those who would gladly give their personal services, or however discomfoting it may be to our national pride in our resourcefulness, we must realize that we have not prepared for this duty we should willingly discharge. Our doctors are efficient and our nurses are splendid in their individual capacities or in familiar environments, but, like our complaisant citizens, they deserve no reproach for their ignorance of battalions or their accessories. Substantial aid to the sick and wounded in the present crisis can be given only by self supporting and resourceful organizations.

It is entirely possible under such conditions to spend money in the transportation, subsistence, and salaries of volunteer personnel sent to foreign countries where the state of disorder and strange environment could prevent their rapid orientation and to leave them more in the way of needing help them-

selves than of helping others. Moreover, the stock of food and medical supplies will be exhausted in any one of the belligerent countries long before their doctors and nurses are expended. Any relief party going abroad should have a perfected organization, a complete equipment, ample subsistence supplies, and a fund for operating expenses for a predetermined period. Every member should carry an individual kit, including bed and bedding, and he should be appropriately uniformed, not because it is a pretty adornment, but because it will be a part of his descriptive list and passport necessary for his casual identification.

The problem to be solved in the dispatch of volunteer aid personnel to the belligerent European armies is identical, in part at least, with the sanitary service of all armies. As the American Red Cross society has no organized hospitals, it is most probable that the formation of such units could be effected by a personnel which has had some training and experience in that work. And, as only the medical officers of the United States army and of the organized militia have had careful preparation and considerable experience in field hospital administration, it seems that they would be best qualified, as a class, to conduct any Red Cross volunteer aid units which may be sent to the European belligerent armies at this time. Moreover, an army field hospital equipped for immobilized service might, as well, furnish the best available pattern for a Red Cross field unit.

Without claim to knowledge of either the intricacies or ephemerality of international law and its qualified enunciations of the principles and practices of neutrality, the eligibility of a medical officer of the United States army for foreign service with American Red Cross units seems to have been already determined by the actual practice of several of the nations now engaged on one or the other side of the European war, as shown by the manner in which they sent sanitary formations of their regular armies to the belligerents in the Balkan wars. These precedents, it seems, might be regarded with the same comfort and lead to the same confident decision which one could easily make when, being nervous and in doubt about the proper costume to wear at a very select and formal party to which he has been invited, he learns exactly what his prospective and punctilious host himself wore on an exactly similar and recent occasion. The incidents referred to as coming under my own personal observation, which furnish precedent for the assignment of medical officers of the United States army to duty with Red Cross units are detailed as follows:

A. WITH THE TURKISH ARMY.

1. *Swedish Red Cross unit*: Composed of the personnel and matériel of a field hospital of the Swedish army, under the command of a captain of the Swedish medical corps, who wore the uniform of his service and grade. Stationed in Constantinople.

2. *Dutch Red Cross unit*: In charge of a civilian doctor with a medical officer of the Dutch navy on duty as operating surgeon. Stationed in Constantinople.

3. *Egyptian Red Cross unit*: Commanded by a

colonel of the medical corps of the Egyptian army. Stationed on the Chatalja Line.

4. *Austrian Red Cross unit*: With matériel of an Austrian army field hospital and with a medical staff of a major of the medical corps of the Austrian army and a civilian surgeon. Stationed in Constantinople.

5. *Five medical officers of the German army* on duty in Constantinople with Turkish Army and Red Cross units.

B. WITH THE BULGARIAN ARMY.

1. *An Austrian army sanitary train* in the sanitary service of the Bulgarian army in both wars. The cars and equipment were that of the regular sanitary unit of the Austrian army and the personnel, a major and sanitary soldiers of the Austrian army medical corps, who wore the uniform of their service and grade.

2. *Two Austrian Red Cross units* with a medical personnel composed of medical officers of the Austrian army. Stationed in Sofia.

3. *Two medical officers of the Austrian army* on duty with Bulgarian army field hospitals.

4. *Two medical officers of the German army* conducted military hospitals in Sofia.

5. *British Red Cross units*: One was sent to Bulgaria during the first and another during the second war. Both units were commanded by a medical officer of the British army with a medical officer of the Indian army as an assistant.

I have met personally in the Balkan war twenty-one medical officers of the European armies, who were either on duty with Red Cross units or serving in other professional capacities with the sanitary formations of the belligerents.

On the other hand, it would be particularly fortunate if the professional experience, which is to be had in the active service of a Red Cross field unit could be acquired by medical officers of the army, who have more need than civil surgeons for a training in the care of the wounded in time of war.

The United States Government might perform a very fitting service to the American people by placing an army transport under the flag of the American Red Cross. The enormous overhead charges of \$1,500 to \$2,000 a day for the charter of a merchant vessel, which might in the end amount to hundreds of thousands of dollars, could be borne much more economically and appropriately by the United States Government than by private subscription.

There is not as much necessity for haste as there is for money and preparation. Money must come first, as no preparation can be made that is not wholly dependent upon funds. Any faint response to the calls of the American Red Cross for money must discourage alike those who are moved by pity for the unfortunate victims of the present terrible reality, and those who, though sympathetic, are politic enough to consider the benefits of future appreciation of our spirit of sympathy and material assistance. Even though we have denied the application of "dollar diplomacy," we need not be so nervous about "mercenary charity." The American Red Cross should have a fund of at least \$5,000,000 to expend in relief work in Europe. Such an amount would be a small per capita contribution from a mil-

lion people. Preparation could then be made for dispatching properly organized and equipped volunteer missions to the scenes of war, and we could also render the still greater assistance of contributing food, medical stores, clothing, and money for the Amelioration of the Conditions of the Wounded and Sick in Armies in the Field, for which purposes the Geneva Conference was reassembled in 1906.

It is indeed a great obligation that the wealthy and powerful nation owes to suffering humanity, and the American people, who never yet have failed to discharge these obligations with deep sympathy and noble generosity, must not now in this great crisis be found wanting.

Our duty is clear, and surely we will help in a substantial way, and remember that in our efforts we shall meet an unpretending, frugal, and efficient people, and that we must guard against the employment of processes which may doom us, not only to failure, but to derision.

ECTOPIC GESTATION.

A Report of Cases at the Roosevelt Hospital, January 1, 1909, to December 31, 1914.

BY HOWARD C. TAYLOR, M. D.,
New York.

On the gynecological service of the Roosevelt Hospital during the six years from January 1, 1909, to December 31, 1914, there were forty-six cases diagnosed as ectopic gestation: Sac ruptured, 33; sac unruptured, 13; total, 46. Of these forty-six cases, forty-four of the patients were married and two were unmarried.

Indications for operation. If a case of ectopic gestation is admitted to the Roosevelt Hospital, and it is believed that there is active bleeding in the abdomen, the patient is ordinarily operated on at once. There are some patients with ectopic gestation that are in such extreme condition that they will not survive the additional shock of an operation and with these it is better to delay. Cases of this class, in the writer's judgment, are not frequent and no such case occurred in the present series.

The bad condition of a patient suffering from an ectopic gestation with intraabdominal hemorrhage is due to two causes. One is the loss of blood from the hemorrhage, the other is the increased intraabdominal pressure from the presence of the blood in the peritoneal cavity. When the abdomen in a case of this kind is opened, the blood is ejected with considerable force, and the general condition of the patient quickly improves. If the condition of the patient was due to the loss of blood alone, it would not improve so quickly, after the intraabdominal pressure has been lessened by the removal of the greater part of the free blood. In the series there were six cases that were operated in immediately after entering the hospital.

If there is no active bleeding at the time of admission to the hospital, that is, if the sac is unruptured or is a pelvic hematocele, operation is delayed until the general and local conditions seem to be favorable for operative interference.

The general condition of these cases is usually

good. It will be noticed, in the table, that the temperature was usually about normal and the average pulse was about 95.

It is often impossible to distinguish an unruptured ectopic sac from a pyosalpinx or a pelvic hematocele from a pelvic abscess. In fact many cases of ectopic gestation are diagnosed only after the abdomen is opened at the operation. If there is no active bleeding and the case is under proper observation, there is no risk in delaying operation for a reasonable time. While we believe that some patients would get well without operation, and that probably many recover without either a diagnosis or even a suspicion of ectopic gestation, we believe that all cases should be operated in as soon as a diagnosis is made and the general condition of the patient warrants it.

With inflammatory diseases of the tubes and ovaries the conditions are different. If an operation is performed too early, there is an increased risk to the patient and important organs may have to be sacrificed. It is therefore best to delay operation, if the condition of the patient will permit, until the acute exacerbation has subsided. In the doubtful cases, therefore, that is, the cases in which a certain diagnosis between ectopic gestation and inflammatory disease of the appendages cannot be made, it is best to delay the operation. It will be noticed, in the table, that the average delay or period of observation was 4.5 days for the ruptured and 3.9 days for the unruptured cases; also that the longest delay for the ruptured cases was nineteen days and for the unruptured sixteen days.

Average number of days spent in the hospital:

Ruptured 21.7 days Unruptured 21 days

Period of observation (admission to operation):

Ruptured.		Unruptured.	
Longest 19 days	Longest 16 days	Longest 16 days	Longest 16 days
Shortest immediately	Shortest 1 day	Shortest 1 day	Shortest 1 day
Average 4.5 days	Average 3.9 days	Average 3.9 days	Average 3.9 days

Duration of time from rupture to operation:

Longest 35 days Shortest 3 hours

Sterility. The relation between ectopic gestation and previous pregnancies is shown in the following table:

Number of cases where there were previous pregnancies:

Children only	20
Miscarriages only	9
Both	13
None	4

It is usually accepted that an ectopic gestation frequently follows a period of sterility. This point was confirmed by the cases in this series. In eleven cases, or twenty-five per cent. of those who were married, there had been a period of at least five years just previous to the ectopic gestation, during which the patient had not been pregnant. The longest period was twenty years.

Inflammatory condition. The same is true of inflammation of the appendages. It is generally believed that inflammation of the Fallopian tubes by narrowing the lumen and in this way preventing the passage of the impregnated ovum to the uterus is an important etiological factor in ectopic gestation.

Of the forty-four cases in this series, seventy-six per cent. gave a history of inflammation of the ap-

pendages, or it was discovered at the time of the operation.

Menstruation. In eighty-one per cent. of the cases there was a history of irregularity in the menstrual bleeding. In 8.7 per cent. there was a history of amenorrhea lasting to the time of operation.

Pain. In 69.6 per cent. of the cases of ruptured ectopic sac, the classical symptoms of acute localized sharp pain, with nausea, vomiting, and fainting were present. Of the unruptured cases 92.3 per cent. suffered from pain on the side of the diseased tube.

Breasts. The breasts were enlarged and tender in forty-four per cent. of the cases and in fifty-five per cent. they showed no change.

Blood examinations. In an unruptured ectopic sac there is no reason to expect any change in either the red or white blood cell count, excepting from excessive menorrhagia. As there is no bleeding in such cases, there should be no change in the red blood cell count due directly to the ectopic condition. The white blood count may be moderately increased from peritoneal irritation, but the increase should be slight.

In the unruptured cases in the series, the average number of white blood cells was 8,670 with seventy-three per cent. polynuclear cells and twenty-five per cent. lymphocytes.

In cases of ruptured ectopic sac, there are several factors which influence both the red and the white cell counts. These factors are the amount and suddenness of the hemorrhage, the time that has elapsed between the hemorrhage and the blood examination, and finally the presence or absence of infection.

If the bleeding is slow, such as may occur from the uterus over a long period, or from a number of moderate hemorrhages from the ruptured tube, or from the slow continuous bleeding that sometimes occurs from the end of the tube, then there is a marked diminution in the red blood cells and in the percentage of hemoglobin, and there may be a slight increase in the white blood cells, as is seen in secondary anemia.

If there has been a sudden and profuse hemorrhage in addition to the change in the red cell count and in the hemoglobin percentages, there is a marked increase in the total number of white cells and also in the percentage of polynuclear cells. The extent of this change depends on the amount of the hemorrhage and the time that has elapsed since it occurred. In the present series the highest total white count was 24,000 with eighty-eight per cent. polynuclear cells. In a case of ectopic gestation at the Roosevelt Hospital, which occurred previous to the period covered by the present series, the total white cell count was 46,000, and ninety-five per cent. were polynuclear cells. If such a case is examined a few days later, both the total and polynuclear count will be less. In the present series, excluding the infected cases, the average white blood count was 14,430 and 83.7 per cent. polynuclear cells. If an ectopic sac becomes infected, the white cell count depends on the extent of the infection; it follows closely that of a pelvic abscess.

Operation. The indications for operation have already been given. The abdomen may be opened

either through the vagina or through the anterior abdominal wall. There are three indications for opening the abdomen through the posterior vaginal wall: 1. For diagnosis; 2, for small pelvic hematocele; 3, for septic infection of the pelvic hematocele.

For diagnosis, an opening in the posterior vaginal wall is of great value. There are some cases in which the diagnosis between an acute salpingitis and a ruptured ectopic sac is difficult. In these cases, as the patient is in the dorsal position for cleansing and the ether examination, an incision in the posterior fornix requires but a moment of time. If the case proves to be a ruptured ectopic sac, the wound can be left for possible drainage and the abdomen opened above the pubes with practically no loss of time and no injury to the patient. If the case proves to be an acute salpingitis, the peritoneal cavity has not been opened and the parts have been handled in a way that is associated with special risk to the patient. The posterior wound may even be of value for drainage in such a case. At the Roosevelt Hospital, a posterior colpotomy is frequently used to establish the diagnosis of ruptured ectopic gestation sac before the abdomen is opened through the anterior abdominal wall.

A small pelvic hematocele can properly be treated by a posterior vaginal incision. If the hematocele is small, it can be largely enucleated through the vagina, the cavity packed lightly with gauze and the case cured more quickly and safely than if the abdomen is opened above the pubes. If the hematocele is large, it is not possible to remove all the blood clots, and the cavity is nearly sure to become infected before it is healed. This increases the risk and the duration of the convalescence. In cases of large hematoceles, it is therefore the custom at the Roosevelt Hospital, to open through the anterior abdominal wall, and to remove the blood clot more completely than can be done through the vagina.

If sepsis is present in the hematocele, that is, if it has been converted into a true pelvic abscess, or if the blood clot has become fluid, then a vaginal incision and drainage without opening the abdomen is the safer and the proper treatment. The abdominal route is used in all unruptured tubal gestations and in all the ruptured cases that are not included under the indications for selecting the vaginal route. When the abdomen is opened, the ruptured tube is removed if the opposite tube is present and in condition to perform its function. If the opposite tube is not in such a condition, the ruptured tube is resected. Occasionally an unruptured tube is incised, the gestation products are enucleated, and the tube is resutured. In a few cases of tubal abortion, no operation on the tube is necessary.

The following table gives the frequency of the different operations in the cases in the present series:

Posterior colpotomy only:		
Ruptured	2	6.0 per cent.
Unruptured	0	
Abdominal only:		
Ruptured	20	60.0 per cent.
Unruptured	12	92.3 per cent.
Abdominal and colpotomy:		
Ruptured	11	33.3 per cent.
Unruptured	1	7.7 per cent.

Mortality. In the series there were four deaths or a mortality rate of 8.7 per cent. Two of the deaths were in cases that had advanced beyond the fifth month. One patient died from shock and hemorrhage and the other from septicemia.

Subsequent pregnancies. Of the series, excluding the cases that ended fatally and those in which the operation precluded pregnancy, there were fourteen patients whose history in regard to subsequent pregnancies was obtained. Of these fourteen cases, three had subsequent normal pregnancies. One patient had three children, another two children, and the third had a miscarriage.

In addition to these cases of normal pregnancy, there were four cases or 8.7 per cent. of subsequent extrauterine gestation.

32 WEST FIFTIETH STREET.

SURGICAL TREATMENT OF HYPERTHYROIDISM.*

By JOHN B. HAEBERLIN, M. D.,
Chicago.

Hyperthyroidism was used by the internist and physiologist some ten to twenty years ago to designate an increased secretion of the thyroid gland in contradistinction to hyposecretion, called hypothyroidism. Its activity was classified, clinically, from an entire absence of secretion through the various grades of diminished secretion past the normal, then to the excess of secretion. As the interrelationship of the ductless glands and their interdependence one upon the other were more understood, it was noted that quantitative production was but one of the factors of thyroid secretion.

The term, hyperthyroidism, unfortunately does not express our present day idea of the symptom complex formerly designated under this term. It is a term whose meaning and usage are changing, owing to our modern advances and researches. Much better usages are, I believe, *thyrotoxicosis*, as it expresses the poisoning resultant from the gland or *dysthyroidea*, which accounts for the perverted secretion which may be altered qualitatively as well as quantitatively.

This thyroid toxin is thought by many to be a primary affair, not a secondary or concomitant symptom. The indications for its relief are, 1, prevention of toxin formation; 2, elimination, or, 3, neutralization. There is no medical means for the prevention of toxin and no means of elimination. As to neutralization or counteraction, we have an attempt in the form of serums, thyroidectins, radogen or milk of thyroidectin goats, etc. The one great thing to do is the destruction or extirpation of the toxin producing parenchyma, and this is done by our surgical methods. The surgical means are therefore logical and based on facts and results.

The surgical treatment of hyperthyroidism is simply the result of evolution, an effort on the part of the profession to give relief to patients. The internists, after fruitless efforts, have in a measure unloaded their responsibility on the surgeon, and we find that during the past decade the operation for

thyrotoxicosis has grown from an exceptional procedure, being performed *in extremis*, to one of common occurrence accepted by most of the American profession as the correct procedure.

If we look up operative work on the thyroid gland as it existed twenty years ago, we shall be struck by its terrific mortality, its tremendous complications occurring early as hemorrhage and shock, and late as tetany, myxedema, voice involvement, etc. This, when compared with our present day surgery on the thyroid, shows our great improvement. At some clinics as many as 275 cases have been operated in without a mishap—early or late. There are many factors accountable for this and the one most paramount is the early diagnosis and operation in our cases. Taken along with our fuller knowledge as to its anatomy, physiology, pathology, and improved technic and surgical skill, this has brought the mortality and complications to such a plane that it is not met with the fear that once swayed the surgeon. We have in reality an operation which has arisen out of the extreme danger plane. It is distinctly a modern operation and has its greatest impetus in, first, the frequent failure of medical treatment, and, second, its own successful results.

The operative procedure on the thyroid gland has its greatest backing in the American school despite the fact that Kocher is the Nestor of thyroid work. Not all schools by any means are as enthusiastic as the American school. At the Mayo clinic practically all thyrotoxicosis cases are considered as surgical. Plummer (1), in giving his indications for operation, includes cosmetic, prophylaxis, pressure and thyrotoxicosis, practically every condition. Crile (2) says "there is no more doubt in my mind as to the benefits of operation for exophthalmic goitre than for opening an abscess." And this is the trend of the American surgeon in general. Osler recommends operation.

Next comes the German school, a little more cautious and conservative. Strümpell (3) remarks, "many surgeons have great confidence in the operative treatment of exophthalmic goitre." He himself is not overenthusiastic. Kocher (4), on the other hand, says "we long ago abandoned the belief that every goitre must first be treated by internal remedies and referred to the surgeon only if internal medication fails."

The French school, I believe, is most pessimistic. Dieulafoy (5), after a careful summing up, says, "it is therefore impossible at present to give surgical treatment the preference over medical means." Many French surgeons are skeptical as to the surgical results. One can see how conflicting these ideas are. However, some one must be right. Truth will eventually prevail.

Osler (6) has taken this stand and says "removal of part of the thyroid gland offers the best hope of permanent cure." Such a statement from so great an authority whose conservatism is known worldwide, should and will have its influence.

With a comparatively limited experience, I have come to the conclusion that the surgical treatment is the only sheet anchor left to the profession. It took some years to convince myself of this and I quote from a paper read at the Central Illinois Medical Society:

*Read before the Englewood Branch of the Chicago Medical Society.

It has been my good fortune to see many goitre cases, and it has been my experience that a well established case of thyrotoxicosis, in which no error of diagnosis entered, usually is best treated surgically. I have seen both the toxic exophthalmic and toxic nonexophthalmic types recover for years under medical treatment, but all these cases have had a change of environment in their life which eliminated worry and gave the patient quiet, undisturbed, restful surroundings. Never have I seen a case of recovery occur where the old mental worry and severe physical and psychical irritation and exhaustion have kept up.

The present day indications for surgical interference vary with the surgeon. Many of the more conservative surgeons still do not operate, but I believe among many of the foremost men, as example Mayo, Crile, Murphy, Ochsner, the consensus is that all cases of dysthyroidea or thyrotoxicosis should be operated in unless some grave contraindication exists.

Kocher (7) summarizes the indications of goitre under seven headings. Plummer (8) divides indications under four heads (cosmetic, prophylactic, pressure, and thyrotoxicosis). When we have genuine thyrotoxicosis there are, I believe, a number of conditions which when present are contraindications to operative procedure, and the patient must either be tided over this brink and operated on later, or we must desist, as these are the cases that usually prove fatal. They are:

1. Loss of cardiac vascular compensation with dilated heart. This is diagnosticated by the edema, dyspnea, increased area of heart dullness, loss of normal heart tones, and embryocardia. We frequently have myocardial degeneracy in these cases and no one can prognosticate the intrinsic vitality of the heart. These patients frequently die on the table or at best live for several days.

2. Other concomitant diseases, as extensive involvement of the parenchymatous organs as the kidneys, lungs, etc. It is always possible for cases of thyrotoxicosis to have some other serious lesion and I warn that too hurried surgical procedure is poor surgical judgment. No case should be operated in without a full understanding of the patient's general condition and in this way many a catastrophe will be prevented. It is well understood that the periods of acute exacerbation is contraindicative of operative procedure.

The question of preparedness of patient enters into our ultimate success. First, always operate, when possible, on the upwave of improvement. The course of cases of thyrotoxicosis is usually one of fluctuation. They have their exacerbations and spells of improvement. Many cases swing from excess poisoning to moderate poisoning like the movement of a pendulum; others apparently swing from hyperthyroidism to periods of hypothyroidism. When possible, it is always best to operate at the period when the improvement is greatest or when we believe the patient's condition is best. Second, always have a well rested, quiet patient, if possible. The psychical influence on the patient is a great help (Crile). Third, the use of general anesthesia, in my mind, is preferable. In the hands of the skilled surgeon the work is facilitated. The dangers of recurrent laryngeal nerve complication, parathyroid involvement, or hemorrhage are not any greater than under local anesthe-

sia. The psychical shock is much less and the comfort of the patient is much greater. Much depends upon the skill of the anesthetist. Fourth, the anesthesia should be preceded twenty to thirty minutes by morphine and atropine hypodermically. This insures a dry throat and windpipe and helps to quiet the patient. Scopolamine, grain 1/200, one hour before operation is used for very nervous patients at the Mayo clinic. Fifth, Crile's anociassociation; the use of local anesthesia with the general, to bar the afferent impulses, has a real significance and does lessen shock. Crile injects freely 0.5 per cent. novocaine solution.

The surgical treatment of thyrotoxicosis may be summarized in the following procedures, which have crystallized out of many a makeshift operation. They are:

1. Porter's operation. 2. Sympathectomy. 3. Ligation. 4. Thyroidectomy or resection.

1. Boiling water—The injection of boiling water in the treatment of dysthyroidea. Porter (9) conceived the idea of injecting boiling water in the gland from the effects of boiling water injections on angiomas as devised by Wyeth, of New York. He reported twenty-two cases so treated in 1913. He believes it a safe and efficient method, in cases where it is indicated. Indications he gives are, first, very severe cases; second, mild cases; and, third, where patients refused the major operation. Mayo (10) recommends the Porter operation in severe cases with dilatation of heart when other surgery is contraindicated. Porter injects with an all glass syringe from forty to 230 minims directly into that portion of the gland thought to be diseased. He states that the improvement in symptoms begins within twenty-four hours and progresses for weeks. The injection may be repeated a number of times. Those interested I refer to his original article.

2. Sympathectomy. This operation, often called the Jaboulay operation, is the removal of the superior and middle cervical sympathetic ganglions. The superior cervical ganglion is the second largest sympathetic ganglion in the body, situated (11) behind the internal carotid and in front of the superior end of the longus capitis on a level with the transverse process of the second cervical vertebra.

The sympathetic system is constituted mainly of the visceral and vascular nerves and those of the superior and middle cervical ganglions supply the eye. It is in this way that it is used to correct exophthalmic goitre. We know when injury is done to these sympathetics in normal cases we have a ptosis. The physiologists, Dastre and Morat, have shown that the cervical sympathetic have vasodilator fibres. The French school, I believe, are the exponents of this operation.

3. Ligation. The polar ligation of the thyroid gland is simply a procedure to help tide over the patient. It is, I believe, unsurgical and does not permanently remove the trouble. It brings relief to the patient and should be supplemented with thyroid resection. It is not so frequently performed as formerly and is useful only in limited cases. Its advantages is its quickness of performance with absence of shock and trauma. That it permanently relieves vascularity of the gland is not accepted.

4. Thyroidectomy. This should be the operation of choice, when possible, for the relief of thyrotoxicosis. With our present knowledge as to when to operate, preparedness of patient, improvement of technic, we should not have a mortality of over one to three per cent.

In removing the gland, one must bear in mind, not only the immediate complications that may arise, but the later results of tetany, myxedema, and recurrence, its influence on sex life and on metabolism, one must not lose sight of the gland's pathology as well as its physiology. Roswell Park (15) said that when the entire gland was removed seventy per cent. of cases developed symptoms. If parathyroids are injured or removed, we may get symptoms of hypoparathyroidism. Kocher states that three fourths of the gland may be removed with safety. Mayo tells us that if one sixth of gland remains it will be sufficient. One should always bear in mind that the remaining portion of gland may become diseased or atrophied, producing symptoms. The life of complete thyroidectomized persons is placed by Kocher at seven years. These points are of vital import to the surgeon.

The technic of thyroidectomy as it is now performed seems very simple. The points which have impressed me most to make this a quick and easy operation are:

1. Adequate exposure, large enough collar incision to insure plenty of room.

2. Splitting of the infrahyoid and infrathyroid muscles to allow exposure of gland. Split high up to avoid nerve supply and later resulting scar. Split anterior belly of omohyoid, if necessary. The splitting of sternocleidomastoid, I believe, is rarely necessary.

3. Loosening of Kocher's capsule.

If the recurrent laryngeal nerve is visible and accessible and the parathyroids are not incorporated in the posterior portion of the capsule, the entire lobe may be resected. If, however, there is any doubt as to freeing the recurrent laryngeal nerve or injury to the parathyroid, it is much better to resect and leave the posterior portion of the capsule. This at once insures safety to the nerve and preserves the parathyroids.

4. Resection. Using many small clamps in the work, the amount of hemorrhage is not alarming and, with ample exposure we should have perfect hemostasis. In sewing up the remaining capsule we use a long continuous catgut suture which, when properly placed, insures perfect control of hemorrhage.

5. Closure. If one does not bring the capsule together properly, allowing some of the gland substance to come in contact with the surrounding tissue, one will always get a profuse drainage of the wound owing to the effects of colloid substance on the surrounding tissues. The muscles should then be carefully sutured, care being taken to bring them together nicely. Carefulness in closing is rewarded by a clean cut, smooth scar that is not unsightly.

The complications that we should be on our guard for are hemorrhage, injury to the recurrent laryngeal nerve, disturbance of parathyroid functions, loss of thyroid functions from excessive resection, and reappearance and early recurrence of symptoms

owing to too small resection. The complications referable to the anesthetic and to other organs have been omitted.

In looking at thyrotoxicosis and dysthyroidea from its several angles we are compelled, I believe, to admit that the surgical treatment when done well, is the best line of treatment. It has much to gain to be ideal and operations are at best gruesome to patients so afflicted, but it is the one means for relief and up to the present is our sovereign remedy.

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5 EAST GARFIELD BOULEVARD.

VISUAL PERCEPTION, RETENTION AND REPRODUCTION.

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Vision is an elementary psychic process in response to a physical and biological excitation. The visual act begins with a stimulation by means of luminous rays reflected from a given object, acting upon the anterior portion of the visual apparatus, where, in response to optical laws, they undergo a process of refraction, converging to meet upon the sentient sheet of the retina, where, as a result of photochemical changes they form an image, which is finally carried by means of the optic nerve through the optic tract to the corticovisual centre, where it is interpreted by the cortical cells into a definite percept, and as such it is carried by association fibres to another cortical area, namely, the visiomemory centre, where it is retained and stored for future references. In this storage house it may remain in a latent, quiescent, subconscious state, but it may also be reproduced in our consciousness whenever occasion requires. We thus have in our biological constitution a distinct system of visual perception, retention, and reproduction intimately connected with one another.

CLEARNESS OF IMAGE IN PERCEPTION.

We do not all perceive images with the same clearness at a given distance. One man may see clearly a given object at a certain distance, while another can perceive no image at all or may see an image blurred without being able to recognize it in its entirety. The essential conditions necessary for the production of a clear image are:

1. A properly constructed visual apparatus with a normal refractive status or an artificially corrected eye, where the ametropia has been converted by means of optical aid into an emmetropia.

2. Clear media of refraction where the cornea, lens and vitreous are perfectly transparent.

3. A properly constructed fixation apparatus where the external ocular muscles are in perfect balance.

4. A healthy eyeground free from any disease

that would produce distortion of the retinal image.

5. A healthy optic nerve and optic tract to conduct the retinal image to the visual centre in the brain.

6. A healthy visual centre or a normal psychic centre.

It is well known that the myope, especially of a high degree, cannot see a certain distance with clearness, because no image is formed on the retina clear enough to be transmitted to the visual centre for perception. In fact this may be true of all types of errors of refraction of high degree. Images, if formed at all under such circumstances, are so blurred, that they cannot be transmitted by the optic nerve for psychic interpretation. It follows then that the primary act of perception requires either a normal, or artificially made normal refractive condition of the eye. It is likewise essential that the various media, through which the rays of light have to pass should be clear and transparent. Corneal opacities, for instance, especially when centrally situated, will at once interfere with the formation of a clear retinal image. The same is true of an opaque lens and vitreous. The formation of a retinal image requires further a normal retina with normal subretinal layers to assure the proper photochemical reaction to produce the image. When the image is formed at the retina we are still not at the psychic process of perception. We require further a healthy optic nerve which acts as the conductor of the retinal image to the visual centre. Any obstacle in the path of this, physiologically speaking, image conducting electric wire, will interfere with the normal perception of the retinal image. And finally the perceptive apparatus itself, as is obvious, must be in such a receptive condition, that it is capable of receiving and perceiving the image transmitted by the optic nerve. It is at this point that the psychic elementary process in the visual act takes place where a sensory stimulus carried through this circle of physical and physiological pathways becomes converted into a psychic process.

For ordinary purposes in life for the function of vision alone, the visual apparatus could terminate at this juncture. But the complexity of our life demands more than this from our optical apparatus. It is essential that we not only see objects, but recognize them when we see them again. That necessitates another important element, namely a retention faculty or centre, where images perceived before are retained or stored for analysis and recognition. This image retention centre for form and color retains, in a latent state, images perceived which may later be either recognized or recalled as the occasion requires.

The recognition of a previously perceived image depends upon a renewal of a sensory stimulation from an object that has a similarity to the object seen before. Recognition is a psychic process that depends upon renewal of a previous sensory stimulation. By this means we are able to identify objects that at present set up the same excitation in the visual tract, that a similar object produced some time ago. The recalling of an object in idea in a mental image does not depend upon a renewed sensory stimulation, but comes through a psychic

stimulation set into motion by the effort of the will. Here we do not have the object in physical form to stimulate the visual tract and the psychic path, but the thought of the object or the object in an idea, stimulates primarily the visual tract and then is transformed into a sensation. The cycle essential for visual perception is practically the same. No mental image can be produced with any degree of exactness without first stimulating the visual apparatus, either by means of physical or psychic forces. The recalling ability of images into a state of consciousness must of course depend upon the previous perception primarily, and secondarily upon the power of retention, so that one psychic process is dependent upon another psychic process for its possible existence.

RETENTION OF VISUAL PERCEPTS.

The power to retain or conserve perceived images varies with different individuals. Some may retain images indefinitely, others for a considerable length of time, while some can retain them only for a short time after the object producing the physical sensation has been removed.

There is a degree in the power of retention, just as there is a difference in the acuity of vision in different individuals. Retention is latent memory. It is a condition in which there is no active process, but it may, when necessity arises, be transformed into an active process. Thus, for instance, we saw a building somewhere at sometime years ago. We have never thought of this building and have never reproduced it in our consciousness in the form of a mental image. Yet this picture is retained in our cerebral cortex in a latent state. We may, however, either by means of the effort of our will or because of some association of ideas, be confronted with a condition when the image of that building again stands in our consciousness as a visual image. The latent visual energy has been converted into an active mental process. The process of retention of visual percepts depends upon the following principles:

1. Fixation. This is a physical act in which the external ocular muscles are so directed as to fix the object at the same time it produces a clearer image. Central vision will be retained longer than peripheral vision. Images perceived from peripheral impressions fade away, even if recognized as soon as the stimulating objects are removed. We also know that it is possible to look vacantly into space without actually perceiving any definite object, or if perceived it is only temporarily. There is a lack of fixation which interferes with our power of retention. Fixation is essential to perception as well as retention.

2. Duration of fixation. The time spent in the process of perception greatly influences our power of retention. The longer the time of fixation, the better the power of retention. The longer the object is exposed to our optical apparatus; the longer we look at an object; the longer the primary perception, the better, and the more probable the retention. A momentary perception will quickly fade away and the image may be recalled with difficulty or not at all a few hours after it has been perceived. On the other hand, when an object has been ob-

served for a considerable time, the prolonged period of exposure during the primary act of perception produces an impression which may be retained for a long time.

3. Frequency of observation. The power of retaining visual percepts is greatly augmented by the frequency of observation. It is common knowledge that objects seen only once and then for a short time only, are not retained in our memory like objects seen more frequently. Repeated visual perceptions of the same objects so impress themselves upon the mind that they last longer, sometimes indefinitely.

4. Mental observation. Frequent observation by means of visualization or mental reproduction of the image perceived will also tend to augment the power of retention.

5. Mental fixation or attention. By mental fixation we mean the interest we take in the object at the time of perception. In physical fixation it is the external ocular muscles that focus the object, in mental fixation it is the mind that is focusing the object by the special interest the object evokes. These two forms of fixation reinforce each other to make the retention more positive. Retention is in direct ratio to mental fixation. The more interest we take in the object sighted; the more we analyze it; the higher the degree of attention; the longer it will be retained in our memory.

6. Psychic media. The receptive condition of the mind during the process of perception must be taken into consideration. Just as in the process of perception a clear physical ocular medium is essential to the visual act, so also is a clear mental refractive medium of importance to the process of retention. The mind must be in a receptive condition to effect a higher degree of retention.

7. Heredity. There is no doubt, however, that heredity plays a most important part in the power of retention of visual images. Mental efficiency or deficiency is an inborn quality depending upon some inherent property of the brain substance itself.

8. Association. The power to retain images for a long period after they have been perceived, depends also to a great extent upon the association of objects at the time of perception. Whenever objects are associated, even though unintentionally, they become linked together through this mental analysis, and their images are retained much longer in our memory. A connecting chain of associated images seems to produce a more lasting impression, thus enhancing the power of retention.

REPRODUCTION OF VISUAL PERCEPTS.

To reproduce or revive in our consciousness visual images perceived in the past, is purely a psychic phenomenon, having for its physical basis the primary peripheral sensory stimulation when the object was first seen. During the primary process of perception, when we first see an object, there is of course a peripheral sensation of light stimulating the retina, the optic nerve, the visual centre, and visual memory centre where the image is stored up for future references. In the psychic process of reproduction there is probably also a stimulation, which, however, is central instead of peripheral, beginning in the will centre, and by

means of associated fibres passing to the retention or memory centre, the visual centre, and going through the same cycle of visual function as in the primary process of perception, before we are really conscious of the reproduced image.

The difference in the two processes is that in the process of perception we look from without, while in the process of reproduction or mental imagery we look from within. In the latter process there are of course no photochemical changes in the retina, as the direct stimulating effect of light rays is not present. We may consider the process of perception as physical photography, and visual reproduction as mental photography.

Reproduction and retention of visual percepts are interdependent psychic processes. There can be no revival of any visual percept without the retention phenomenon. The only difference to be noted is that the retention phenomenon is a passive, while the reproduction element is an active process. There may be a variation in the degree of these two interdependent psychic processes. The power of retention may be normal, while the power of reproduction is subnormal, or is temporarily in abeyance. We may, for instance, occasionally try to bring to our consciousness a certain scene perceived long ago, without success, yet this very scene may still linger in our retention centre in a passive form, and we may, as a result of some psychic stimulation at some subsequent time, recall the visual image of this scene. Whenever we reproduce in our mind a visual image, there is a conversion of latent energy into an active process. Retention without reproduction is possible; reproduction without retention is impossible.

Reproduction of visual images depends primarily upon the process of perception and the process of retention, but there are some conditions necessary for the revival of visual images.

1. A healthy memory centre free from pathological conditions.
2. A clear psychic medium.
3. Psychic fixation.
4. Mental association.

The ability to recall images perceived at some remote distance of the past varies in degree with different individuals, and at different periods of life in the same individual. This faculty may be complete and spontaneous, or it may be partial and difficult, or there may be an absolute inability to recall images of the past into our consciousness. We may, in passing, also refer to the fact that the quality and distinctness of the image recalled also differ in various individuals. This subject of visualization does not, however, belong within the scope of this paper and must be studied separately. This difference in the degree of the power to reproduce visual images in our consciousness depends upon some definite causal elements that can be intelligently traced.

It is essential that the anatomical structures of the cortical area which constitute the visual centre as well as the visiomemory centre and the associating fibres connecting the two centres, should be free from any pathological condition so that they perform their physiological and psychological functions normally. Assuming this to be so, the chief point

of consideration is the quality of the brain element that makes up these two important centres. Here heredity suggests itself at once. The intrinsic quality of these cortical areas is undoubtedly better in one man than in another by mere accident of birth. The descendants of parents whose visual memory was highly developed, will probably inherit a more sensitive and more responsive brain quality that will enable them to reproduce images perceived in response to the demand of the will, much more easily than those who descend from ancestors that had no occasion to train their memory. It is likewise a well established fact, that the children of alcoholic and syphilitic parents have this memory function partially impaired. Acquired diseases, such as meningitis, will also impair the power of visual memory, either temporarily or permanently.

Assuming the visual memory centre to be normal, free from hereditary taint or acquired disease, the power to reproduce visual images will be materially enhanced by a clear psychic medium. This depends upon our frame of mind. When our mind is free and undisturbed, in a well balanced state, without any element of depression, we may be able to recall images much more easily than if the mind is depressed or otherwise seriously engaged. We have all had the experience of trying to recall some images to our mind without success, while at some subsequent time the same image was recalled with ease. There was some disturbance in the psychic medium that interfered with mental imagery. In a fit of anger or other psychic disturbance, you may in vain try to recall visual images of the past. The visiomemory centres may also be depressed by such poisons as alcohol. In these cases the perception may have been normal, the power of retention normal, but the psychic medium through which the latent image has to pass in order to be converted into an actual visual process, is not clear, hence the transformation from potential to kinetic energy becomes impossible. Just as perception requires a clear medium for refraction, so visual reproduction requires clear psychic media for psychic refraction.

Assuming a normal memory centre and a clear psychic medium, we still find another psychic factor that plays a considerable role in visual reproduction, namely, mental fixation or attention. Fixation is essential to the act of perception, and it is also necessary, as already stated, for the process of retention, and again it is of importance in the process of visual reproduction. In this psychic process of mental fixation, we must concentrate our effort toward one object, and fix mentally the image desired. Sometimes it is necessary that this process of attention should exclude all other disturbing thoughts or images in order to fix the image desired. This endeavor to exclude all other images is usually accompanied by closure of the eyes and by movements in which the various muscles of the face and eyebrow take part. Occasionally a movement of the hand over the eyes and brows with a contraction of the corrugator supercilii muscles takes place. This constitutes a mental search to locate a desired image.

The process of visual reproduction is also influenced by the process of association. This process may be of the same kind, such as association of images, or it may be of a different kind, association

with other senses such as auditory or tactile. The visual memory is augmented when reenforced by auditory or tactile sensations. This association acts as a stimulus to convert a latent retention into an actual visual reproduction.

From this short résumé, we can see that between the primary visual act of perception and the final act of visual reproduction, there is a long psychic chain which may be broken somewhere, so that visual memory images may be absent, although the visual apparatus is still intact, performing its normal physiological function.

917 SPRUCE STREET.

SYPHILIS OF THE NERVOUS SYSTEM.*

How It Is Treated in the Frankfurt and Hamburg Clinics.

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To the American clinicians the effective measures of the salvarsan treatment of luetic affections are well known. The purpose of this paper is to discuss briefly the methods employed in the two representative clinics in Germany—the Dreyfus clinic at Frankfurt and Nonne's clinic at Hamburg. The Dreyfus clinic is in Frankfurt, where the first idea of salvarsan was conceived; here the great master Ehrlich visits the clinic and renders individual supervision and offers suggestions. Hence Dreyfus, unlike other clinicians, has the advantage of receiving invaluable assistance from Ehrlich's laboratory.

One is impressed with the well planned and orderly arrangement of the clinic. The feature that stands out most prominently, is that Dreyfus does not treat the patients as merely cases but as individuals; this is especially noticed in his methods of treatment in the various forms of syphilitic diseases. He first selects the type of the disease; secondly, gives the intensive treatment of salvarsan and mercury; thirdly, adapts the dose to the individual and is guided by the constitutional reaction, and, fourthly, the treatment is continuous, with definite periods of intermission.

Ehrlich and Dreyfus prefer old salvarsan to neosalvarsan and use the latter only on certain indications, especially when a mild nonirritating action of salvarsan is desired: nevertheless the initial treatment is frequently begun with neosalvarsan. The concentrated solution of salvarsan was always used and was prepared as follows: The dose of old or neosalvarsan was dissolved in thirty-five c. c. of double distilled water, then the sterile sodium hydroxide was added and the solution injected with the syringe directly into the vein.

Patients suffering from syphilitic affection of the nervous system soon after the primary infection are as a rule strong, robust patients, and can tolerate a much larger dose than those in whom the infection has been present for many years.

A searching physical examination of the patient

*Read before the New York Neurological Society, November 10, 1911.

precedes every course of treatment with salvarsan. In fact, it determines the final treatment. If the patient suffers from stomach disease, a *thorough* stomach analysis is made and the condition treated before the salvarsan treatment is started. In some patients who are young and robust, salvarsan alone is administered. In patients about sixty years of age, salvarsan is given with a great deal of care, and in those above seventy no salvarsan is administered, except upon very good indications that the patient might be benefited and not harmed.

In cases with tuberculosis, chronic heart disease or nephritis, the pros and cons were carefully gone over. No patient with fever of 38° C. was given any form of antisyphilitic treatment. Tuberculous patients without fever receive small doses of soluble mercurial salts by injection and neosalvarsan intravenously, as that is borne much better than old salvarsan. Severe cases of heart disease receive a preliminary course of mercurial treatment for two weeks, after that small, gradually increasing doses of neosalvarsan are administered. In cases of nephritis, neosalvarsan is used and no mercury.

A course of treatment lasted six or eight weeks, during which time the patient received from three to six grams of old salvarsan or four and a half to nine grams of neosalvarsan with six to twelve mercurial injections of 0.02 to 0.05 of a forty per cent. calomel solution, or the same dose of some especially prepared oily solution of mercury. The oily solution of mercury never produces the local reaction which frequently occurs from the calomel injections. The injections of mercury are preferred on account of their more rapid effect; inunctions were thought to have an unfavorable influence, especially in cases with weak hearts, on account of the mechanical force used in rubbing the mercury on the skin.

Patients after receiving a dose of salvarsan intravenously, are kept in bed for twenty-four hours; if at the end of that time, there is no feeling of illness nor rise of temperature, patients are permitted to be out of bed. Two examinations of urine weekly are considered imperative.

After the physical examination of the patient has been completed—this included the lumbar puncture, Wassermann of the blood and spinal fluid—the diagnosis of the stage of the disease is agreed upon and a carefully planned systematic course of treatment is begun.

EARLY BRAIN SYPHILIS.

The approximate outline of the course of treatment of early brain syphilis is as follows: A course of mercurial treatment consisting of five injections of 0.02 to 0.05 c. c. of forty per cent. calomel solution every third day; if at the end of this time, the patient shows no febrile reaction to the injections of mercury, the injections of salvarsan are then started. The mercury injections are continued every third day and a concentrated solution of 0.15 gram of neosalvarsan injected directly in the vein with a syringe. If this dose produces no reaction, the patient receives a second dose of 0.3 gram on the following day; no untoward symptoms developing, he receives 0.45 the third day and 0.6 on the fifth day. This is continued every other day until the patient has received one and a half to two grams of neo-

salvarsan. Dreyfus begins to treat with old salvarsan, generally starting with a small dose, 0.1, and never goes beyond 0.4 of old salvarsan. The dose is repeated every second day. If at any time during the treatment the patient has a febrile reaction after the injection, the treatment is discontinued and not begun again until the patient is free from fever for at least two days.

The use of neosalvarsan is preferred at the beginning in early brain syphilis, because it rarely produces the febrile reactions of old salvarsan. When old salvarsan is used in the beginning, the temperature frequently is excessively high and sometimes the patients are delirious for eight to twelve hours. The total amount of old salvarsan given in the course of six or eight weeks is four to five grams. If the patient consents to take two courses of treatment, he receives in the course of four months, six to eight grams of old salvarsan and two to three grams of neosalvarsan.

In patients who stay four months, the Wassermann test is, as a rule, negative in the blood and fluid, and globulin and cell count are also negative. The patients who take but one course of treatment have generally a positive Wassermann in the fluid, globulin slightly positive, and the cell count is diminished to one half or one third. These patients are always advised to return for a second course of treatment in two or three months.

The prognosis in early brain syphilis is made favorable; in fact, a positive cure is promised to all who return for reexamination and take the treatment if the physician advises it and considers it imperative.

Patients who leave the hospital with a positive Wassermann in the fluid, slightly positive globulin, and only slightly diminished cell count, frequently return at the end of two or three months complaining of eye symptoms, deafness, and some complain of facial palsy.

The Wassermann test, cell count, and globulin reaction are the index of the success of the treatment. If a case after one course of treatment has a negative Wassermann, negative cell count and globulin, a second course of treatment is not advised.

LATE STAGE OF CEREBROSPINAL SYPHILIS.

The majority of the cases in the Dreyfus clinic are of this type, and the prognosis is generally favorable for improvement, but not for cure. After a thorough physical and serological examination, the patient is allowed to rest in bed for two or three days without therapy; he then receives three mercurial injections, one every other day; after the third injection, the treatment is begun with old salvarsan and continued every other day for six or eight weeks. The total amount of salvarsan given intravenously averages four or five grams.

There are two classes of this kind of cerebrospinal lues. One class shows a negative Wassermann in the fluid and negative serological findings. These cases, though favorably influenced by the treatment, do not show the remarkable improvement of the other class with positive Wassermann in the fluid and positive serological findings. In the first class it is thought that the disease has become stationary, with an irreparable anatomical defect.

while the second class is considered as active syphilis, with curable pathological lesions. Among the second class, hemiplegias, spastic paralysis, parathesias, deafness, oculomotor symptoms, headaches, and dizziness all may disappear during the course of treatment.

TABES.

In tabes cases, Dreyfus always treats the patient with salvarsan alone for three weeks, giving one injection of salvarsan of 0.1 to 0.2 gram every other day. At the end of three weeks he combines the treatment with mercury. In tabes he always exercises great caution in selecting the mercurial preparation, as he has frequently found that the patients showed a marked intolerance to some mercurial salts and not to others. As a rule, he prefers mercurial inunctions in cases of tabes, but often uses the mercurial salicylate.

With this form of treatment, the patients improve rapidly, gastric and lancinating pains disappear, the ataxia and visceral symptoms improve; the tabetic cases with a negative Wassermann in the fluid also show improvement with this form of treatment.

The tabetic patients are always emphatically advised to take a course of treatment every three months until four courses are taken, and in general it is thought that several courses of treatment are necessary to obtain any marked improvement.

TREATMENT BY MODIFIED SWIFT-ELLIS METHOD.

I may here state that whenever a lumbar puncture was made, either for the purpose of diagnosis or for the purpose of treatment, the patient was invariably made to lie flat on the back for twenty-four hours. It is hardly necessary to state that proper antiseptic measures were observed in making a puncture and giving the treatment.

In the intraspinal administration of salvarsan, Dreyfus uses Gennerich's modification of the Swift-Ellis method. He dissolves 0.15 gram of neosalvarsan in 300 c. c. of sterile salt solution; of this solution five c. c. are injected intraspinaly after the withdrawal of an equal quantity of spinal fluid. His results in initial lues cerebri are very encouraging. In several cases the Wassermann in the fluid, the globulin, and cells are negative after two or three treatments. The dose is repeated every three weeks.

In the intraspinal treatment of tabes, the results are rather symptomatic, but nevertheless very striking, as in some cases the gastric crises and lancinating pains have disappeared and bladder control is regained. The ataxia improves, but the physical signs, such as Argyll Robertson pupils, absent knee jerks, and breast anesthesia, remain. In one case there was a remarkable improvement in the feeling of numbness that the patient had in his feet. The disadvantage of this method of treatment is the great pain and discomfort that it frequently causes. Severe pains in the limbs, vomiting, headaches, and dizziness are frequent symptoms after the treatment.

The tendency of Dreyfus is to use the intravenous method for the administration of salvarsan, and in this way he hopes to obtain a complete destruction of the spirochetes.

Dreyfus has no cases of general paresis in his ward. Since February, 1914, he has used two new preparations of salvarsan from Professor Ehrlich's

laboratory. The one is copper salvarsan, the other sodium salvarsan; both can readily be dissolved in water and do not entail the manipulation required in the preparation of old salvarsan. The solutions are given in concentrated form directly into the vein with the syringe. With this mode of administration, three or four cases can easily be treated in the course of half an hour. No report of these new preparations of salvarsan has been made as yet by Professor Ehrlich. The only advantage claimed in the clinic is its easy method of preparation for administration.

In the Dreyfus clinic, a great spirit of optimism prevails, which leaves no doubt in one's mind as to his successes in the treatment of syphilis of the nervous system with salvarsan. No such optimism exists, however, in Professor Nonne's clinic in Hamburg. He is of the opinion that there is even more confusion in the treatment of syphilis than there has been at any other time; nevertheless, there is also no want of desire to try every scientific method suggested.

In Nonne's clinic, every patient suffering from syphilitic or metasyphilitic disease of the nervous system receives a course of mercurial inunctions, irrespective of the stage of the disease. Generally the patient receives an inunction of four grams of mercurial ointment daily for five days. The sixth day is for bathing and cleaning, and the seventh day is a day of rest. Four weeks of inunction are called a course of treatment.

Nonne has a clinic of 250 to 300 patients, seventy-five per cent. of whom suffer from some form of syphilitic disorder of the nervous system. For purpose of treatment, Nonne has his tabes cases divided into groups. One group receives mercury inunctions, another group mercury inunctions and intravenous injections of salvarsan, a third group, mercury inunctions plus intraspinal injections of salvarsan, and a fourth group receives no treatment whatever.

In cases of general paralysis, he uses the mercurial inunctions and intraspinal injections of salvarsan, in the cerebral lues cases he prefers to give mercurial inunctions with intravenous injections of salvarsan.

Nonne employs von Schubert's modification of the Swift-Ellis method. In this method he withdraws three c. c. of spinal fluid and dissolves in it a dose of neosalvarsan (0.045 gram); two tenths of this solution is dropped into the spinal fluid which has been allowed to run into a sterile glass retainer, the retainer being connected by a rubber tube to the puncture needle. This fluid, which now contains 0.003 gram of neosalvarsan, is then allowed to run back into the canal by gravity. By this method he rarely has the symptoms of fever, pain, discomfort, and distress with which Dreyfus has so frequently to contend in using Gennerich's method. With this means of treatment, many patients who are suffering from cerebral lues are cured, many improve, few remain unchanged, and some become worse.

In his tabes cases Nonne gets with the intraspinal treatment, symptomatic improvement; pains and numbness disappear, gastric crises are not nearly so frequent after the treatment, and bladder

symptoms commonly improve. In some cases the bladder symptoms are very much worse after the treatment. In two cases the gastric crises returned after a month.

With his cases of general paralysis Nonne claims symptomatic improvement. In some cases the speech defect improved, the Romberg symptoms became less, facial palsy became better, some who were unable to walk could go out and walk with a cane, some became mentally clearer, some who had been restless and disturbed became quieter, and one who had been tube fed began to eat.

Beside the usual examination of serum and Wassermann tests of blood and fluid, Nonne always employs the luetin test of Noguchi, not so much for aiding in the diagnosis of the disease, but rather as a means of recognizing a cure, for if the luetin test is negative at the end of the course of treatment, the case is considered cured.

In looking over the cases I have seen, I find that the treatment did a great deal of good; many cases of cerebral syphilis were cured, some improved, and in tabes and general paralysis, symptomatic improvement followed. As a rule, only a few cases remained the same or became worse. Inasmuch as these last two diseases have formerly led to but one end, one may be justified in taking a chance with this form of treatment, as it certainly promises some relief.

It is noteworthy that in some cases, two or three doses accomplish the same result as ten or fifteen and even twenty doses in other cases. In some cases it is impossible to obtain a negative Wassermann test after a long course of treatment. A negative Wassermann in the blood gives no information concerning the nervous system. The Wassermann in the fluid is the only index to the progress of the disease. The Wassermann may remain positive and the globulin and cell count negative, or *vice versa*.

In Nonne's clinic it was interesting to see his method of investigating cases. If a mother or father came to the hospital and the Wassermann test was found to be positive, the whole family was examined. It was not at all infrequent that a family with four or five children came to the hospital, had the Wassermann test made on the blood, and the lumbar puncture performed to make a serological examination. If the family did not come to the hospital, one of the assistants went to the house and made the examination there, if the family consented. Not only were the immediate members of the family examined, but if grandfathers and grandmothers were alive, they were prevailed upon to have a blood examination made, and if he could persuade them, Nonne also made the lumbar puncture. In this way, he collected cases where syphilis could be traced back three or four generations.

A New Substitute for Iodoform.—A. Mouchet and Malbec, in *Paris médical* for January 30, 1915, recommended a combination of iodine and powdered cinchona as an odorless substitute for iodoform. The iodine and cinchona powder possesses an agreeable odor, antiseptic power, and a beneficial effect on wounds, overcoming infection and odor, and promoting granulation.

THE MANAGEMENT OF SEPTIC CONDITIONS IN THE ABDOMINAL CAVITY.

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The proper time to operate for an acute peritoneal infection is the subject of a diversity of opinion among the profession. This misunderstanding, I believe, is due to the fact that a clear conception of the pathological changes that take place in the abdominal cavity is wanting. You hear one group of men say that they cure nine tenths of all their cases of general peritonitis by an early operation, another one half of their cases, still another one third of the cases, and so on down the line. I believe, and I am not alone in my belief, that an infection virulent enough to involve the entire peritoneal surface is severe enough to take the patient's life, no matter what line of treatment is attempted. This difference of opinion could not exist if surgeons and pathologists defined just what is meant by general peritonitis. It would be a great aid to surgery and to surgical statistics if a standard classification of septic processes in the abdominal cavity could be effected.

The presence of free pus in the abdominal cavity does not necessarily mean a general peritonitis, in fact it merely indicates, in a majority of cases, a spreading peritonitis which will localize itself if the proper treatment is instituted. Some of our over zealous surgeons go so far as to call a ruptured gangrenous appendix a general peritonitis, and believe that if an operation is not resorted to at once, death will invariably follow. To them, a delay of a few hours at this time means a fatal outcome. How are we to know that death will result from such delay? There is no way on earth of telling.

We have seen the so called peritonitis localize in so many instances that we are led to believe that the "wait policy" is the best and that the proper time to operate is when the barriers have been thrown around the pus, and when immunity has reached a high state. The shock of an operation undoubtedly lowers the resistance of the patient, and if a process shows no bounds, considerable damage may be done before the patient's recuperative powers come into play. By pursuing this "delay method," we feel that we are preventing an extension of peritonitis rather than saving patients suffering from general peritonitis.

The peritoneal cavity presents about as much free surface as the skin surface, and the lymph and blood supply is greater than that of the integument. The absorption from such an area must be great, so great, in fact, that an infection extending over the entire peritoneal surface would cause death long before a surgical operation could be resorted to. How much of the peritoneal surface can be affected and the patient recover? How much peritoneal involvement is necessary before we call the condition a general peritonitis? We are not in a position to answer these questions. If death results from an infection covering one third of the body, as so often occurs after extensive burns, it is reasonable to presume that an infection covering about one third

of the peritoneal surface would be sufficient to overwhelm the patient with toxins and thereby cause his death. In burn cases, however, the initial shock and the metabolic toxins arising in the burning have to be contended with, but the infection that follows is usually produced by saprophytic and nonvirulent organisms, while infections in the peritoneal cavity are usually caused by organisms whose products present a high degree of toxicity for the human species. I see no way of approaching this question experimentally just at present, so we have to content ourselves with a little speculation.

The peritoneal surface excretes as well as absorbs. A large amount of saline solution given intravenously causes an outpouring of a lymphlike fluid in the abdominal cavity, and, for this reason, saline solution aids in diluting the toxin arising in infection and its use cannot be too highly recommended in septic processes in the peritoneal cavity. It is also noteworthy that when fibrin appears on the peritoneal surface, the surface loses, to a large extent, its ability to excrete and absorb.

Bearing these things in mind, it has been the custom of my colleague, Dr. George Ben Johnston, and myself, to employ a modified Ochsner treatment for practically all infections of the abdominal cavity, and the results obtained by it are uniformly good. Peristalsis and unnecessary handling, two important factors in disseminating pus, are minimized. General peritonitis does not develop when the delay method is properly conducted. A liver abscess or a general septicemia may appear during the treatment, but this is just as likely to happen when an operation is performed in the face of a spreading peritonitis. I have in mind two patients who were in the hospital at the same time; one, a woman who was given the Ochsner treatment and with it two abscesses localized, one in the midline and the other in the appendix region; both were drained; the other case, in a boy of twelve years who was operated on in the face of a spreading peritonitis due to a gangrenous appendix. Both patients developed liver abscesses and a general septicemia.

To limit peristalsis is the keynote of the Ochsner treatment, and is accomplished by body and bowel rest and by heroic doses of morphine. In giving morphine we should remember that nausea, gas, and vomiting, three troublesome symptoms of acute abdominal conditions, are also symptoms of morphinism; we should, therefore, regulate our doses of morphine as accurately as possible; cessation of pain and contraction of the pupils are perhaps the best indicators of morphine effect.

At this point I should like to emphasize the danger of the use of cathartics in constipation, especially in constipation associated with pain. In our statistics reported at Norfolk we had nine cases of diffuse peritonitis with five deaths. All nine cases had received free purgation. While this fact does not prove that purgation was responsible for the peritonitis, yet on the face of it we think that purgation played a large part in scattering infection. Doctor Johnston says "that we take more responsibility in prescribing a cathartic in constipation associated with pain than we do in advising an abdominal operation."

The thirst which necessarily arises during starva-

tion can be controlled, in a measure, by frequent sponging of the mouth, saline per rectum by the drop method or by small amounts at frequent intervals, and by hypodermoclysis. We should avoid undue distention of the lower bowel by the introduction of large quantities of fluid, because this distention is likely to set up peristalsis throughout the intestines. The patient should be told just what we are trying to accomplish by withholding fluids and food, and, if he is approached in the right manner, he will cooperate and help carry out the treatment. He can be taught to regulate his rectal salt solution—to cut it off when his rectum becomes distended and to turn it on again when the feeling of distention disappears. He should be informed that thirst is perfectly natural, but that he is getting plenty of fluid to take care of the wants of the body. If we set his mind at rest about the thirst, we have helped his cause considerably.

Pain that arises in peritoneal involvement, like the pain in pleurisy, is greatest in the dry, congested phase of inflammation. As soon as the lymph and pus pour over the inflamed surface, there is a diminution of pain. A large quantity of saline solution under the skin or in a vein is followed by the appearance of a lymphlike fluid in the peritoneal cavity, and by its use the peritoneal surface is converted into an excreting surface. Saturating the patient with normal salt solution is a good way to control the pain that arises in the early stage of peritonitis. This statement may be paradoxical to some, but I have been saturating my patients with normal salt for several years, and I have no reason to regret it. I might add also that none of my patients has complained of the salty taste. If the peritoneal surface becomes covered with a fibrin coat, it loses, to a large extent, its excretory function, but when this takes place there is usually enough fluid in the peritoneal cavity to lubricate the inflamed bowel. Morphine, of course, cannot be dispensed with in controlling the pain, but by the use of saline I believe the doses of morphine can be lessened considerably.

The internist has shown that whenever there is starvation for any length of time, there appears in the urine certain derivatives of oxybetabutyric acid, which are quite dangerous and keep up nausea and vomiting. In our starvation for acute abdominal conditions, the derivatives of oxybetabutyric acid have frequently been found in the urine. These acids are derived from fat metabolism. It is a known fact that the body needs a certain amount of carbohydrates, and if this amount is not supplied by the mouth, our body attacks the available carbohydrates found in our make-up. Fats and glycogen found in the liver and muscles are the chief sufferers. When the glycogen entirely disappears, the fats have to supply the desired amount of carbohydrates, and as a result of fatty metabolism these acids accumulate in the blood and are taken out of the blood by the kidneys and appear in the urine. Bloodgood, in a very able contribution, advocates the use of carbohydrates, chiefly glucose, in saline enemata before operation. We have been giving, as an adjunct to our starvation, small amounts of saline per rectum with glucose dissolved in it. Glucose, by supplying the desired carbohydrates to the body, not only tends to prevent the vomiting, but

also aids materially in keeping up the nutrition of the patient.

Vomiting is best treated by the use of gastric lavage. If there are vomiting, gas, and constipation, symptoms of acute obstruction, we use the stomach tube and the high rectal tube freely, also enemata of small size.

Our plan is to operate in all cases of acute appendicitis seen before forty-eight hours have elapsed from the beginning of the symptoms until the time of the consultation. We realize, of course, as do most surgeons, that a hard and fast line cannot be drawn as to the time the attack began, but by careful histories we can, in a majority of instances, get a fair idea as to the duration of the attack. Some cases of appendicitis can be operated in at any stage of the attack, but where there is peritoneal involvement we delay the operation until we think it safe to open the abdominal cavity.

The acute symptoms of appendicitis with peritoneal involvement subside either by resolution and subsequently with the formation of a few adhesions, or by abscess formation. The former class of patients we send home and tell them to return in about three months for an interval operation. If an abscess forms, we drain it, but make no effort to remove the appendix; later we go in and remove the appendix and such adhesions as have formed during the attack.

The only change in the outline of treatment for cholecystitis and salpingitis is the fact that we do not do an early operation on these organs, but always wait until the acute symptoms subside. During the last year it has been my custom to remove more gallbladders than heretofore. I am a great believer in the fact that bile in some way stimulates adhesions, and after reviewing the histories of my cholecystostomies, I have come to the conclusion that postoperative symptoms following that condition are undoubtedly due, in the majority of cases, to adhesions set up by the spilling of bile in the peritoneal cavity. The removal of a gallbladder is an easy procedure in the hands of a good surgeon, and to me it is just as important as the removal of a chronically inflamed appendix.

We operate immediately in all cases of bowel perforation due to typhoid ulcer, gastric and duodenal ulcers, gunshot wounds, and other external injuries, provided that the patient is not too profoundly shocked or not in a moribund condition. These cases are treated as if they were general peritonitis.

Little has been accomplished in the postoperative treatment of acute abdominal conditions during the past three or four years; in fact the old methods are quite as good as the new. The introduction of glucose in the saline enemata is, in my opinion, the only advance worthy of mention. A number of attempts have been made to devise a bed to place the patient in a suitable position for drainage, but the beds have not been universally employed with the degree of success that the makers had hoped for. The reason for their failure, I believe, is the fact that the underlying principles of drainage are not understood. The Fowler position, which is the ultimate aim of these beds, has received some pretty severe jolts in the last year or so, and, in spite of the fact that it is not manly to take a punch at a party when he is down, I wish to go on record as saying

that indiscriminate use of the Fowler position has been responsible for the extension of the peritoneal involvement in a number of cases—and that it is harmful in abscesses not situated in the pelvis.

In order to bring about suitable drainage, three factors have to be considered, viz.: 1. Gravity; 2, capillary action; and, 3, siphon action. The best way to empty an abscess is to throw the pus in direct contact with our line of incision—and not away from it, as we do when we place the patient in a sitting position. In an appendicular abscess the patient should not be elevated, especially if the pus barriers have been broken down at operation and we can never say with any degree of certainty when such an occurrence has taken place—because it is useless and harmful to throw the pus in the pelvis by putting the patient in the sitting posture. The same statement applies to abscesses situated about the gallbladder or liver, for in Fowler's position the pus is liable to gravitate and spread the infection. In abscesses not situated in the pelvis, the patient should not be elevated, but should be turned toward the affected side, and, once or twice a day, should be turned over on the face so as to throw the pus against the line of incision. In abscesses in the pelvis, the Fowler position should be employed, for here we strive to limit the infection by this posture. In general peritonitis the object of the Fowler position is not so much to avoid the diaphragm as to collect the pus in the pelvis. A well placed drain, along with turning the patient on his face, and elevating the foot of the bed for ten minute periods twice daily, will aid in clearing the pelvis of the accumulated pus.

There is one point in drainage that deserves special emphasis, and that is the drain should occupy the most dependent part of the abscess. Advocates of the Fowler position state that absorption is greater in the upper portion of the abdominal cavity than in the lower, and, for that reason, they attempt to throw the pus in the abdominal cavity toward the pelvis. The lymphatics in the upper abdomen are perhaps more numerous than in the lower, but it may be that they are concerned more with digestive absorption than with absorption from the peritoneal cavity. The work of Rowntree and Dandy seems to indicate that absorption from the abdominal cavity is hemic rather than lymphatic, and that there is little difference in the absorption in the region of the diaphragm than in the pelvis. If these experiments are to be accepted, and I see no reason why they should not be, the Fowler position for all septic processes in the abdominal cavity will have to make way for the Fowler position in pelvic abscesses and general peritonitis.

After drainage the most important factors in the postoperative treatment are food and attention to the bowels. Solid food should be withheld for at least a week or two after operation, especially if the condition is the result of a bowel perforation. Patients do not require much food when at rest, and with a liquid, or a semisolid diet we can readily take care of their wants. Food should be given frequently and in small quantities—a large meal carries with it more peristalsis than a small one and peristalsis is one thing we are trying to limit. Purges are to be given with extreme caution, in fact, we seldom employ them during the first week of con-

valescence, but instead we use enemas of small size. A large enema will set up violent peristalsis, and will do untold harm if a ligature blows off, and the occurrence, while not frequent, is not unusual.

Postoperative vomiting and gas are treated just as we treat the vomiting and gas that arise before an operation is restarted to.

Therapeutic Notes.

Treatment of the Preliminary Phases of Puerperal Infection.—V. V. Stroganov, in *Semaine médicale* for July 8, 1914, it is stated, mentions the advantage of using simultaneously several antiseptic drugs in the form of hot vaginal injections in cases of retained lochia with fever from absorption of toxic products. The value of this procedure lies not only in that it avoids failure of antiseptics by reason of gradual habituation of microorganisms to a given antiseptic agent, but in that it produces a more complete antiseptics, some organisms not sufficiently sensitive to one antiseptic agent being then acted on by another. In light forms of septic disturbance, Stroganov begins with injections of one in 3,000 or one in 4,000 mercury bichloride solution at 46° to 47° C. If in a day or two the condition has not improved, or if the condition was more serious from the start, three injections a day are given, the first with a one in 3,000 bichloride solution, the second with a 1.5 per cent. phenol solution, and the third with a mixture of one part of alcohol with ten parts of one in 3,000 bichloride solution. Among thirty cases thus treated, there was but one death, this occurring in a case of severe puerperal infection in which life was already despaired of on admission to the hospital. In the other cases the morbid conditions ran a distinctly favorable course, the time elapsing before subsidence of fever being shorter than in patients not treated by this method.

Treatment of Variola.—N. S. Fedotov, in *Semaine médicale* for July 15, 1914, is stated to have used sodium nucleinate in forty cases of smallpox, with highly gratifying results in some respects. Subcutaneous injections of a ten or fifteen per cent. solution of the remedy were generally employed. The weaker solution was used in children and cases with unusual sensitiveness of the skin. Adults were given fifteen to thirty grains (one to two grams) of the nucleinate in cases of moderate severity and thirty to forty-five grains (two to three grams) in the severe cases. Children received fifteen grains (one gram). The drug was also at times given by the mouth, but injections proved more effectual. It is advised that the treatment be begun as soon as the eruption appears and continued to the beginning of the stage of desiccation.

A notable effect of the treatment was the arrest of suppuration in the vesicles, even in the most severe forms of confluent variola. The characteristic offensive odor given off by smallpox patients was thus eliminated. Furthermore, after the crusts had loosened and fallen, scarring was practically absent in most instances. The elimination of the suppurative stage resulted in a marked diminution in the frequency of complications. In the series of forty

cases only seven patients manifested complications, which were of suppurative nature in only one instance; whereas in a previous series of thirty-nine cases, treated without the nucleinate, fourteen patients manifested complications, which were suppurative in seven. While not exerting an aborting effect on the temperature, the sodium nucleinate none the less lowered the thermic curve and shortened the duration of the fever. The temperature returned to normal on the twelfth to the fourteenth day, compared to the nineteenth or twentieth day in the control series of cases. The mortality in the forty cases treated with sodium nucleinate was 17.5 per cent. If the mild and moderately severe cases were excluded the mortality was 41.1 per cent. In the thirty-nine control cases, on the other hand, the mortality was 24.3 per cent., and, counting only the twelve severe cases, 83.3 per cent. A distinct difference in favor of the cases treated with the nucleinate is thus noted.

Treatment of Dysmenorrhea.—Siredey and Lemaire, in *Paris médical* for April 25, 1914, discussing the treatment of dysmenorrhea of ovarian origin occurring in the period of climacteric, point out that this condition is met with chiefly in women of the neuroarthritic type exhibiting a tendency to congestive paroxysms and obesity, and suffering from disturbances due to lack of equilibrium between the various internally secreting glands. Mild hypothyroidism, hyperthyroidism, slight pituitary insufficiency, and adrenal overactivity have all been observed in this class of cases. Hypothyroidism is, however, the most frequent condition, and combined ovarian and thyroid organotherapy is therefore indicated. This treatment will act not only upon the attacks of pain, but also on the tendency to obesity and the lowered metabolic activity generally associated with the neuroarthritic habitus. Its beneficial effects are, moreover, distinctly enhanced if a diet largely vegetarian is ordered and brief courses of alkaline or diuretic medication, persistently repeated, are given. In this variety of dysmenorrhea drugs acting favorably upon the venous system are of especial value. Either of the following combinations may with advantage be ordered:

I.

- R Tincturæ hydrastis,
Fluidextracti viburni {āā ℥lxxv (5 grams);
prunifolii,
Fluidextracti hamamelidis foliorum, 3iiss (10 grams).
M. Sig.: Ten to fifteen drops in water before each meal.

II.

- R Ergotæ pulveris,gr. xv (1 gram);
Potassii bromidi,gr. lxxv (5 grams).
M. ft. cachetæ No. x.
Sig.: Two cachets daily at mealtime, for four or five successive days at the most.

III.

- R Fluidextracti ergotæ, {āā 3iiss (6 grams);
Sodii bromidi,
Fluidextracti cannabidis indicæ, ..℥viii (0.5 gram);
Alcoholis,
Glycerini,āā 3iiss (10 grams);
Syrupi acaciæ, q. s. ad.....3iv (120 c. c.).
M. Sig.: One teaspoonful twice daily before meals.

In addition to the foregoing medication, general hygienic measures should be instituted. The blood pressure and urinary output should be watched, and corrective measures applied if occasion presents.

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SCARLET FEVER IN NEW YORK.

As in the case of various other diseases, the prevalence of scarlet fever varies greatly in different years, but in this city since 1908, when the number of cases reported amounted to 24,426, although there have been some fluctuations in the case incidence, the general tendency has been downward. Thus, in 1914, the cases numbered 11,105, and while this was a slight increase over 1913, it is found that in the first quarter of 1915 the tendency has again been downward. In this quarter the case fatality was only 2.7 per cent., against 4.7 per cent. in 1913 and 4.1 per cent. in 1914.

Formerly the desquamation of this disease was regarded as an especially dangerous means of conveying infection. We find Goodhart, of the Evelina Hospital for Sick Children, London, saying: "When may a child who has had scarlatina mix with other children? Not until desquamation is over, and six weeks is about the necessary quarantine, provided that the child has been carefully tended with reference to this matter. Desquamation will linger for two or three months, if not hastened by proper attention to the cleansing of the skin, and I must confess to thinking it advisable to act with perhaps exaggerated caution in such matters. It is often a question of sending a child back to school . . . and I do not hesitate to extend such partial quarantine to two, and in some cases even three months." Now, however, desquamation is not believed to be infectious unless it is contaminated by secretions, and the

accepted opinion is to look upon the onset period of scarlet fever as the most important. Still, while the virus of the disease, which is contained in the discharges from the mouth, nose, and throat, is most abundant during the eruptive stage, there can be no question that it is capable of persisting for a long time—just how long is unknown because the specific microorganism of scarlet fever has not yet been discovered. This germ appears to be not only longer lived, but also more resistant to heat, cold, sunshine, and moisture, than the germs of measles, diphtheria, and whooping cough. Cases are on record where a fresh outbreak of the disease has occurred months, even a year, after a former one, owing to the packing away and subsequent use of clothing infected by discharges from patients, and the virus has been known to be carried for long distances by such articles as letters and books.

The department of health reports that its bureau of preventable diseases is now engaged in thorough and comprehensive comparative studies, with the hope of determining just what amount and kind of disinfection serves any useful purpose, and that the evidence at hand indicates that disinfection of fomites during the course of the disease, with cleansing and airing of the sickroom at its termination, affords the maximum of protection with the minimum of hardship and expense. For the suppression of scarlet fever early diagnosis, prompt reports, and immediate isolation of cases at home or segregation in department hospitals are stated to be the fundamentals, and in this work the friendly cooperation of private physicians is indispensable. Whenever the requirements for satisfactory quarantine cannot possibly be carried out, every effort is made to secure the removal of the patient to hospital. The people of New York are found to be acquiring a better appreciation of the excellent service given by the hospitals of the department, and there are now very few "forced in" cases. There is certainly a difference in the persistence of infectivity in different instances, and as to when quarantine shall be lifted, it is thought to be best to fix a minimum period applicable to all indisputable cases, and to extend this when the case demands it. At the present time thirty days is the minimum, though many suspects, where the evidence is insufficient or otherwise unsatisfactory, are held for shorter periods and with varying restrictions.

THE PRESUMPTION OF SURVIVORSHIP.

The sinking of the *Lusitania* has again presented to our courts, this time in Maryland, the problem of determining the survivor of two men making reciprocal wills: this problem has many times been before the courts.

By the Roman law, where no evidence was obtainable the problem was solved by the presumption that if a father and son perished in the same battle or shipwreck, and the son had arrived at the age of puberty, he survived the father, but otherwise that he died first. If the dead were over sixty years of age, the youngest was presumed to have survived, but if under the age of fifteen years, then the oldest. Between the sexes in the same class, males were presumed to survive females. Substantially the same presumptions were adopted by the Code Napoleon, and in turn were enacted with more or less change in the codes of Louisiana and California. On the other hand, by the Mohammedan law of India, it is presumed that in such an event all perish simultaneously, and this was likewise the rule of the ancient Danish law.

The courts of England declined to cut the Gordian knot by indulging in an arbitrary presumption, but adopted the rule that the survivorship must be proved by the party asserting it. As far back as 1596, it became necessary for an English court to determine in a controversy between a mother-in-law and daughter-in-law whether the father or son, who were joint tenants, survived. The father and son were hanged from the same cart. It appeared upon the trial that one of the victims was seen to move his feet after the muscles of the other were stilled in death.

The doctrine finally adopted by the English courts was suggested by Sir John Nicholl, in *Taylor v. Diplock*, 2 Phillim. Eccl. Rep. 261, wherein he said: "Thinking as I do that it is incumbent on the next of kin of the wife to prove her survivorship . . . there is no evidence direct as to the point." And again in *Mason and Mason*, 1 Merin 398, where a father and son perished at sea with no evidence as to survivorship, Sir William Grant said: "In the present case I do not see what presumption is to be raised and since it is impossible you (the claimant of the son's survivorship) should demonstrate, I think if it were sent to an issue you must fail for want of proof." So the rule gradually developed in England that where two or more people who, in case of survivorship would have inherited one from the other, perished in a single disaster, the property would be deemed to remain in the person who previously owned it and to descend to his heirs or next of kin, unless the personal representatives of the other could show survivorship. All questions upon these points were settled in the case of *Underwood v. Wing*, in which it was agreed in the House of Lords, 8 H. L. Leas. 183, that: 1. There is no presumption of survivorship from age or sex among those perishing in a common disaster; 2, none that they all died at the same time; 3, that the question is always one of fact depending wholly upon evi-

dence, in the absence of which it is unanswerable; and, 4, that the burden is always on him who asserts a survivorship to prove it. Except as to California and Louisiana, the rule of the English courts has been adopted in the United States. From the nature of this class of cases the evidence obtainable is frequently very meagre in extent and uncertain in character. In recognition of this fact, the courts are disposed to accept slight evidence as sufficient to establish survivorship.

It will be perceived that medical evidence may be competent to assist the court in determining the question of survivorship. This character of evidence was introduced in the case of *Smith and Croom*, 7 Fla. 81, where a husband and a son perished together in the wreck of the steamer *Home*. Among others, three physicians testified to the physical condition of the husband, showed that he was in feeble health, laboring under "organic disease of the lungs," and incapable of physical exertion. In this case the steamer appears to have grounded and broken to pieces in the heavy sea; the passengers from time to time floated away on wreckage and some of them succeeded in reaching shore. The son was known to have been on a piece of wreckage and to have been washed off and drowned near shore; the husband was supposed to have been washed overboard and drowned. Under all of the circumstances the court found that the son survived.

Want of space precludes the possibility of examining more fully the interesting questions which have arisen under this head, but before closing attention should be called to the anomalous situation which may arise by reason of the different rules which are accepted in California and Louisiana and the remainder of the States of the Union. If for instance a father of sixty-five years and a son of forty years, residing in New York, were to perish in the same disaster without the survival of any witness, the courts of New York in settling the father's estate would decline to find that the son survived, but would treat the situation as if the father had survived; but if the two were joint owners of real estate in California, the courts there, on the same evidence or rather lack of evidence, would adjudicate that the son survived the father.

GREAT VEGETARIANS.

Ben Franklin tells us in his celebrated autobiography that, at the age of sixteen years, he "met with a book written by one Tryon, recommending a vegetable diet." He was so impressed with the arguments set forth that he abandoned the use of flesh, with a sense of improvement in his work "from that clearness of head and quicker apprehension which usually attend temperance in eating and

drinking." At the same time he became a water drinker, and we are left in doubt as to whether the absence of meat or of alcohol from his diet produced the effects noted. Franklin stuck for a year or more to his resolution to eat no animal food, and following the instructions of Tryon, looked upon the taking of animal life for purposes of food as "a kind of unprovoked murder." The odor of frying fish was mightily persuasive for a lapse from the faith, and when on a voyage he saw the fishermen remove smaller fish from the stomachs of the large ones they had taken, he reasoned: "If you eat one another, I do not see why we may not eat you; so I dined upon cod very heartily, returning only now and then occasionally to a vegetable diet."

Herbert Spencer, when twenty-eight years old, through the example of a friend, turned vegetarian and felt improved, but his friend fell into ill health, and after six months he found himself deteriorating, and returned to a use of animal food. He says, "I had to rewrite what I had written (*Social Statics*) during the time I was a vegetarian, because it was so wanting in vigor."

Tolstoi at fifty-seven years adopted a vegetarian diet, to which he held throughout the remaining twenty-five years of his life. His greatest works were completed before he began this diet, and his friends believed he suffered generally from the new regimen.

Strong arguments have been made for better muscular efficiency from a vegetable diet, but a glance over the biographies of the more illustrious men fails to disclose many brain workers who have used an exclusive vegetable diet to advantage, although we may have overlooked some in an extensive research. Moreover, the examples noted of men who attempted to live upon this diet, are not conducive to belief in its efficacy in producing the best mental results over long periods. Even Thomas Jefferson, who was a genuine epicure in vegetables and cultivated great quantities of them for his table, felt the need of flesh as at least "a condiment." Just what he meant by this expression we are left to guess, but evidently he found his digestion improved and his general bodily activity heightened. Apparently meat extractives have such an effect upon digestion, and a surplusage of protein seems to quicken general metabolism.

IMPORTANCE OF THE DIASTOLIC BLOOD PRESSURE.

Those who have been doing work in blood pressure are convinced that not sufficient attention has been paid to the diastolic blood pressure and the pulse pressure. In order to have a complete blood pressure picture, as it has been called, three determinations should be made; the systolic blood

pressure; the diastolic blood pressure; and the pulse pressure, which is the difference between the systolic and diastolic blood pressures. We are not concerned with the technic of the determination; simply with the significance of the findings.

The conclusions of Warfield (*Illinois Medical Journal*, page 399) are of great value. The diastolic pressure is more constant for any individual than the systolic pressure. Furthermore, it is probably a more accurate index of high or low tension than the systolic pressure because it measures the amount of peripheral resistance. Moreover, it is very necessary accurately to determine the diastolic blood pressure because the pulse pressure is obtained by subtracting the diastolic blood pressure from the systolic. The pulse pressure, thus determined, represents the actual head of pressure which is forcing the blood to the periphery; the efficiency of the heart action in the face of the existing state of peripheral resistance. A study of these three landmarks in blood pressure reading gives us desired information concerning the circulation in both the heart and peripheral bloodvessels; the therapeutic importance is plain.

Not only are diagnosis and therapeutics aided by blood pressure determinations, but the prognostic outlook is also made clearer in many cases. For instance, according to Warfield and others, it is agreed that gradually increasing diastolic pressure is of more significance than high systolic pressure. Although experience has shown that one is not justified in at once presaging a bad outcome in cases with high systolic pressure, it is different with high diastolic pressure. A constant diastolic pressure higher than 110 or 120 is a bad prognostic sign.

The pulse pressure also is of value in estimating the prognosis. In order to bring about compensation in cases of hypertension it is now understood that a large pulse pressure is *sine qua non*. On the other hand, when, in such cases of hypertension, pulse pressure is decreasing, we may look for a failing heart. Warfield states that any pulse pressure below thirty mm. Hg. must be regarded as low, while pulse pressure above fifty mm. Hg. must be considered high. He warns us that attempts at reduction of high systolic pressure without proportionate reduction of the diastolic blood pressure may be harmful.

These suggestions, carried out in actual clinical work, will be found to be of the greatest importance in cases with cardiovascular renal disease.

A SIGN OF INTRAUTERINE DEATH?

Fleming Barnardo, in a paper on the Correlation of the Ductless Glands and the Onset of Labor, in the *Indian Medical Gazette* for April, 1915, draws attention to what he avers to be a sure sign of fetal

death, to wit, the appearance within three to five days of milk in the mammæ; the earlier the pregnancy is terminated, the later the milk appears. The phenomenon depends, says Barnardo, on the interaction in the pregnant woman of the glandular hormones.

AN IMPROVISED CENTRIFUGE.

A surgeon at the front writes to the *Lancet* for May 1, 1915, that he had, in addition to his surgical cases, one of cerebrospinal meningitis in a farm lad living fifteen miles from his hospital. The surgeon made a lumbar puncture, centrifugated the cerebrospinal fluid, made a preparation, stained it, obtained the diplococcus, and got the necessary serum from the nearest *préfecture*. For a centrifuge, he utilized the rear wheel of his motor cycle, fastening the tube to a spoke by means of adhesive plaster; after the engine had worked for five minutes, the process was complete.

SUGAR AS A DRESSING.

P. M. O'Brien, of Bradford, writes to the *Lancet* for May 8, 1915, that he has for many years used cane sugar in medium sized crystals to soften callous ulcers, on account of the free passage of lymph over the surface of the ulcer when the crystals are dusted over it. The writer says that he obtained the "wrinkle" from an old woman, who was treating an ulcer on her own leg in this manner, but that she was unable to say where she had learned of the procedure. This is not the first reference to sugar as a wound dressing that we have published; in our issue for April 5, 1913, page 723, will be found an editorial reference to the work of Magnus, of Marburg, who found sugar invaluable as a dressing in all save tuberculous lesions.

News Items.

Change of Address.—Dr. F. Kirschenbaum, to 2114 Eighty-third street, Brooklyn.

Dr. Joseph Friedman, to 691 Lafayette avenue, Brooklyn.

End of Session at Army Medical School.—The closing exercises of the Army Medical School, session of 1914-1915, will be held at the school, 721 Thirteenth Street, N. W., Washington, D. C., on Tuesday, June 1st, at 2 p. m.

The Woman's Medical College of Philadelphia will hold its sixty-fifth anniversary and commencement on Wednesday, June 2d, in the Garrick Theatre. The alumnae conferences of the college will be held on June 4th and 5th. About thirty young women will graduate from the institution this year. Among the speakers will be Dr. Richard C. Cabot, of Boston.

Personal.—Dr. Theodore B. Sachs has been reappointed superintendent of the municipal tuberculosis sanatorium, Chicago.

Dr. Edward C. Rosenow, of the Memorial Institute of Infectious Diseases, Chicago, has been appointed chief of bacteriological research of the Mayo Foundation, Rochester, Minn., and will begin his new work on July 1st.

A testimonial dinner was tendered to Dr. Abr. L. Wolbarst, on May 12th, at Wallick's Hotel, by the physicians who had attended his Thursday night genitourinary clinics at the West Side German Dispensary and Hospital during the winter session. About twenty-five physicians were present. Dr. S. C. Grudberg was toastmaster.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Tuesday, June 1st, Laryngological Society; Wednesday, June 2d, College of Physicians, Lebanon Hospital Clinical Society; Thursday, May 3d, Obstetrical Society; Friday, June 4th, Kensington and Southeast Branches of the County Medical Society.

The James Buchanan Brady Urological Institute, of Johns Hopkins Hospital, Baltimore, made possible by Mr. Brady's gift of \$600,000 to the hospital, was formally opened on May 4th. Among those who delivered addresses were Dr. Edward L. Keyes, Jr., of New York; Dr. Simon Flexner, of New York; Dr. Hugh H. Young, and Dr. William H. Welch, of Baltimore.

The George Crocker Fund for Cancer Research.—A board of managers for this fund has been appointed by the trustees of Columbia University consisting of the following members: Dr. T. Matlack Cheesman, Dr. Walter Mendelson, Dr. Samuel W. Lambert, Dr. Warfield T. Longcope, Dr. William G. MacCallum, Dr. Francis Carter Wood, and President Nicholas Murray Butler. Their term of office will be three years from July 1st.

Antivivisectionists Lose Again in Pennsylvania.—The Gerberich bill, which allows experiments on living animals in the interest of science, has passed the Senate and is now on the third reading in the House. The bill provides for the sale, distribution, and use "for the promotion of biological science and surgery" of unclaimed animals in the public pounds. An amendment was offered on May 18th providing that the bill should apply to all animals "except dogs and cats." As this would have destroyed the purpose of the measure, it was voted down.

Association of American Physicians.—At the thirtieth annual meeting of this association, held in Washington, D. C., on May 12th and 13th, under the presidency of Dr. Samuel J. Meltzer, of New York, the following officers were elected: President, Dr. Henry Sewall, of Denver; vice-president, Dr. George Dock, of St. Louis; secretary, Dr. George M. Kober, of Washington, D. C. (reelected); recorder, Dr. Thomas McCrae, of Philadelphia; treasurer, Dr. J. P. Crozer Griffith. Dr. Francis N. Delafield, Dr. Henry Hun, Dr. George M. Sternberg, Dr. Edward L. Trudeau, Dr. James Tyson and Dr. Victor C. Vaughan were elected honorary members of the organization.

National Association for the Study and Prevention of Tuberculosis.—This association has issued a few special invitations to a private exhibition of a new four reel motion picture film dealing with tuberculosis and other public health questions, just produced in cooperation with a large film company. The exhibition will be held in the Exhibit Hall of the Russell Sage Foundation Building, 130 East Twenty-second Street, Thursday afternoon, June 3d, at 4 o'clock. It is said that the picture has been supervised throughout by the National Association, and, while it teaches some very powerful educational lessons, the story is presented in a forceful, dramatic manner which will interest and entertain, as well as convince those who see it.

A Limit of Nine Months for Treatment at Otisville.—The Association of Tuberculosis Clinics recently adopted a recommendation that a definite time limit of nine months be established for the treatment of patients at Otisville, with the understanding, however, that an extension of time should be allowed in cases especially recommended for further treatment by the attending physician. This recommendation was submitted to and considered by the Committee on Preventable Diseases of the Advisory Council of the Department of Health on May 13, 1915, and was adopted. The recommendation will be followed by the department.

Vital Statistics for the Week Ending May 22, 1915.—There were 1,402 deaths and a death rate of 13.41 reported during the past week against 1,592 deaths and a rate of 14.88 for the corresponding week of 1914. The causes that showed a decreased mortality compared with last week were scarlet fever, typhoid fever, diarrheal diseases under five years of age, organic heart and kidney diseases, and violence. There were only two important causes that showed an increased mortality, lobar pneumonia and pulmonary tuberculosis. The death rate for the first twenty-one weeks of 1915 was 14.57 against the rate of 15.33 during the corresponding period of 1914.

American Physicians Send Aid to Their Belgian Confrères.—During the week ending May 22d, the following contributions were received by the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession: Dr. H. M. Manning, Past Assistant Surgeon, United States Public Health Service, Charleston, S. C., \$5; Anonymous—K, Toledo, Ohio, \$5; Dr. Dwight G. Kreul, Davenport, Iowa, \$10; M. L. H., Wallum Lake, R. I., \$3; Knox County Medical Society, Frederickton, Ohio, \$10; The Medical Club of Portland, Portland, Ore., \$25; Dr. Edward E. Bancroft, Wellesley, Mass., \$10; Dr. Thomas St. Clair, Latrobe, Pa., \$5; Dr. Fred T. Murphy, St. Louis, Mo., \$50; Dr. Hermann Grad, New York, N. Y., \$10; total, \$133.

A New Wing Opened at the Long Island College Hospital.—The Arbuckle Memorial, completing the north wing of this hospital, was opened on May 24th. The wing is five stories in height, 210 by thirty-four feet, and cost \$250,000. It was presented to the hospital in memory of the late John Arbuckle by two of his sisters. The new building will house 171 male patients and, beside the wards and private rooms, it contains a clinical laboratory for forty-five medical students and three research laboratories for the use of the clinical research workers. With the addition of this wing, the physical plant of Long Island College Hospital, valued at two million dollars, is completed. The institution now has seven buildings devoted to the education of medical students and to the care of the sick.

Americans Give Field Hospital.—An American field hospital, an exact duplicate of those used in the American army, is ready to leave Paris for the front. It is the gift of three Americans, who desire that their identity be not disclosed. Each gave \$10,000 to Laurence V. Benet, ex-president of the American Chamber of Commerce in Paris. The field hospital, in which are twenty tents, has been set up in the Bois de Boulogne. Six of the tents are of large size, being capable of taking care of two hundred wounded men. A staff of American ambulance volunteers, among whom Columbia and Harvard universities and Williams, Amherst and Washington State colleges are represented, has been training for tent pitching. Captain Arthur W. Kipling, of New York, is in command of the staff. The hospital will be situated at a point to be selected by the French sanitary service, just outside the range of the enemy's guns.

American Climatological and Clinical Association.—The thirty-second annual meeting of this association will be held in San Francisco on Friday and Saturday, June 18th and 19th, under the presidency of Dr. Henry Sewall, of Denver. All the sessions will be held at the Clift Hotel, where twenty-five rooms have been engaged for the accommodation of the members of the association. An excellent program has been prepared, consisting of twenty papers which will be read and discussed at the four scientific sessions to be held, one in the forenoon and one in the afternoon of each day. The social event of the meeting will be the annual dinner of the association, which will be given on Friday evening at the Clift Hotel. A trip has been arranged through Marin County for Sunday, June 20th, when the society is invited to have luncheon out of doors at the Arequipa Sanatorium, an institution established in 1911 for the care of tuberculous wage earning girls. Members of the association are invited to participate with the National Association for the Study and Prevention of Tuberculosis in a program arranged by the Chicago Tuberculosis Institute in Chicago, June 8th and 9th, and also to attend the sessions and participate in the program of the national association at its annual meeting in Seattle, Wash., on June 14th, 15th, and 16th. Attention is also called to the fact that the Pan-American Medical Congress meets in San Francisco, June 14th to 19th, the American Society of Tropical Medicine, June 14th to 16th, and the American Medical Association, June 21st to 25th. Those who desire to attend the meeting of the Society of Tropical Medicine should communicate at once with Dr. John M. Swan, of Rochester, N. Y., in regard to joining their party. Members are also invited to join the American Society for Physicians' Study Travels in a tour which lasts five weeks, starting from Philadelphia on Sunday, June 6th. For information regarding this tour, address Dr. A. Bernheim, 1225 Spruce Street, Philadelphia. Dr. Guy Hinsdale, of Hot Springs, Va., is secretary of the association, and Dr. Philip King Brown, of San Francisco, is chairman of the committee of arrangements.

The Annual Commencement of Long Island College Hospital, Brooklyn, will take place on Thursday, June 3d, the graduates from the institution being eighty in number, and on Wednesday and Thursday, June 2d and 3d, the annual clinical meeting of the alumni of the college will be held. On June 2d, at 2 p. m., Dean John D. Rushmore and Professor William B. Brinsmade will conduct surgical clinics, and on June 3d, from 8 a. m. to 12 m., Professor John C. Polak will hold a gynecological clinic. At two o'clock in the afternoon Professor Henry M. Smith and Professor John H. Sheppard will hold ophthalmological and otological clinics, which will be followed by nose and throat operations by Dr. Thomas R. French and Dr. Albert J. Keenan. Dr. John A. Quell will demonstrate transillumination of the palatal tonsils; a simple office and bedside method, which is in process of development, will be shown in part.

American Association of Immunologists.—The second annual meeting of this association was held in Washington, D. C., on Monday, May 10th. Dr. James W. Jobling, of the Vanderbilt School of Medicine, Nashville, Tenn., was elected president; Dr. George P. Sanborn, of Boston, vice-president, and Dr. John A. Kolmer, of Philadelphia, a member of the council. The program was a comprehensive one, including papers on serology, immunology, and vaccine therapy. Dr. Oliver S. Hillman, of New York, and Dr. Victor C. Vaughan, Jr., of Detroit, were elected active members, and Professor Emil Abderhalden, of Halle, Germany, Professor Victor C. Vaughan, of Ann Arbor, and Professor Edward C. Rosenow, of Chicago, were elected to honorary membership. The society now have sixty active members and twenty applications for membership. The total number of members allowed by the constitution and by laws, is one hundred. Dr. Martin J. Synnott, of Montclair, N. J., is secretary.

American Association of Anesthetists.—The third annual meeting of this association will be held in the New Auditorium, San Francisco, on Monday, June 21st, under the presidency of Dr. Charles K. Teter, of Cleveland. There will be two scientific sessions, one in the morning and one in the afternoon, the first item on the program for the morning session being the address of the president, who will speak on the subject of Nitrous Oxide Oxygen Anesthesia in Obstetrics. Fifteen papers are listed, and in addition there will be at the afternoon session the presentation of new apparatus for pharyngeal anesthesia, for intratracheal anesthesia, and vapor anesthesia and resuscitation. The meeting will be brought to a close with a banquet at the St. Francis Hotel at seven o'clock. The election of officers will take place at executive session held in the morning, the following nominations having been made: President, Dr. Willis D. Gatch, of Indianapolis; vice-presidents, Dr. Walter M. Boothby, of Boston, Dr. F. Nagel, of Montreal, and Dr. Isabella Herb, of Chicago; secretary, Dr. James T. Gwathmey, of New York; members of executive committee, Dr. Albert Miller, of Providence, and Dr. Paul Lux, of Kansas City.

The Cancer Campaign in Vermont.—Speakers of national prominence have been obtained by the Vermont State Medical Society for the proposed series of educational meetings on cancer to be held in the principal cities of the State early next month. The program calls for an identical series of morning, afternoon, and evening meetings to be held at Rutland on June 8th, Burlington on June 9th, St. Johnsbury on June 10th, and Montpelier on June 11th. In the morning of each day a clinic will be held by the visiting physicians, to which local doctors will bring patients for consultation. In the afternoon, the meetings will be for the medical profession, but the evening meetings will be open to the public and the addresses will be popular in character. Dr. Francis Carter Wood, of New York, will speak at Burlington on the afternoon and also on the evening of June 9th, and will take part in the clinic at Burlington on June 9th and at St. Johnsbury on June 10th. Dr. J. M. Wainwright, of Scranton, Pa., will take part in the morning clinics at Burlington on June 9th, and at St. Johnsbury on June 10th and will address the physicians at the afternoon meetings in these cities and also in Rutland on June 8th and Montpelier on June 11th. Dr. Charles F. Dalton, secretary of the Vermont State Board of Health, will speak at the public evening meetings on all four days, officially representing the State Health Department. Dr. W. S. Bainbridge, of New York, will be the principal speaker at the evening meetings at Rutland, St. Johnsbury, and Montpelier.

HEMADENOLOGY.* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M. D., LL. D.,
Philadelphia.

(Eighth Communication.)

THE THYMUS (Continued).

In our preceding communication (NEW YORK MEDICAL JOURNAL, May 15, 1915) we submitted evidence to the effect that beside losing much of its nutritional value and its power to sustain the functional efficiency of the thymus gland, milk, as at present used in the artificial feeding of infants, was, as a rule, deprived of its inhibitory influence on bacteria. This was shown to be due to chemical reactions which occurred in the milk during the interval between the milking of the cow and the time at which her milk was used for feeding.

As breast fed infants receive chemically perfect milk and are protected thereby against possible infection and death, wet nursing was advocated as a measure the abandonment of which for artificial measures less safe to the child, none but scientifically and legally valid reasons, or the imperative need of earning a livelihood could excuse. Where such conditions prevented wet nursing, however, it was shown that the prevailing sacrifice of infants from this cause, could be prevented by employing goats for the direct nursing of infants. Successful measures in this direction were then described.

Direct nursing with cow's milk. Direct nursing with goat's milk is not only practicable, but is being carried out successfully in other countries. That cow's milk might likewise be employed in virtually the same way, thus affording the infant the protection of all the immunizing bodies the milk contains before they have undergone any chemical change, appears to me quite within the limits of possibility.

An important question which suggests itself, is whether undiluted cow's milk can be used successfully for infant feeding. Ample affirmative evidence to that effect is available. In 1907, for example, Lewin (1) revamping principles that were not new, employed undiluted cow's milk with unfailling success, beginning at the end of the first month. Prior to this, water had been added, giving at first seven ounces of milk with an equal amount of water, adding one and one half ounce of milk thereto each week and omitting an equal quantity of water. By the end of the first month the infants were thus taking thirteen and one half ounces of undiluted milk. This amount he increased by three ounces each month. The only modification allowed was the addition of milk sugar, two tablespoonfuls to the quart. The infants were at first fed every two and a half hours, the last feeding being at ten p. m., thus affording the stomach time to rest until morning. The infants not only thrived on this diet, but showed no tendency to constipation; they urinated less and were free from erythema, eczema, and other cutaneous disorders. No signs suggesting rhachitis were ever observed, and none showed

the large bellies that are common among artificially fed infants.

The use of undiluted milk by this writer is mentioned in preference to the experiences of others because the test was a particularly unfavorable one as regards the digestibility of the milk, the latter having been boiled once, then cooled. Yet a five years' test had shown that undiluted milk could be used with advantage.

More to the point are the observations of W. B. Hanbridge (2), which justify his conclusion that the prevailing teaching that infants cannot digest cow's milk that is not modified is erroneous. In a first series, out of thirty-nine cases, collected from various sources, thirty-five have given very satisfactory results. A second series of fifty cases included fifteen of his own. Four of the infants had been fed on undiluted milk from birth, while the others varied in age from three weeks to five



FIG. 1.—Direct feeding with cow's milk, drawn aseptically into a receptacle, thence into the feeding flask.

months. While ten were in normal health, five suffered from some digestive disturbance. The results were suggestive: Undiluted milk disagreed with only one of ten normal children; even in the latter a mixture of milk and cream overcame the passing of curds, the only morbid symptom. Four of the children who suffered from gastric disturbance did well, while the fifth, who had been improperly fed on milk and water and who had a gastric catarrh, did not. Two of the four who did well under diluted milk, and who were about three months old, had been improperly fed and "were so emaciated that they seemed almost hopeless." One improved rapidly, while the other gained but little in two months, after which it began to gain rapidly. Ten infants aged from one day to five months are stated by Dr. Mary Bryan to have fared better under undiluted milk than under any other method. A premature infant treated by W. Grant Cooper, which had not developed from birth and continued to weigh but two and one half pounds, including

*Hemadenology, from the Greek, $\alpha\iota\mu\alpha$, blood, $\alpha\delta\eta\iota\varsigma$, gland, $\lambda\omicron\gamma\omicron\varsigma$, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

clothing, at five weeks, gained rapidly under undiluted milk, three teaspoonfuls every two hours at first. Three weaklings out of four treated by Elkins improved rapidly under undiluted milk; in one of these, various commercial foods and modified milk had failed. Out of thirteen infants in whom F. C. Mason had tried undiluted milk, eight did well, and five could not take it. Of these three had also failed under "a great variety of foods including modified milk, and did not seem to be able to digest cow's milk in any form."

Analysis of this report and of others in which undiluted milk was used shows a fair proportion of failures. When, however, we take into account the fact that probably in not a single instance was the milk fed to the infants immediately after it had been drawn from the cow and before its immunizing bodies had had time to undergo any degree of chemical change, the showing is certainly such as to warrant the conclusion that undiluted cow's milk is preferable to modified milk. Such being the case with milk drawn several hours, correspondingly altered chemically as regards its ferments and nucleoproteids, and containing steadily increasing colonies of bacteria, *milk fresh from the cow drawn under aseptic conditions and fed directly to the infants undiluted and unaltered*, in all probability, by

counteracting the gastrointestinal disorders and marasmus present in infants in which ordinary or dead milk had failed, would have raised the proportion of successes considerably. Yet, how feed an infant directly from the cow?

In so far as directness is concerned, the method shown in the annexed illustration, where practicable, meets all requirements. A well kept cow, carefully examined periodically, is used as nurse much in the same way as described in our preceding article concerning the goat as milch animal. Here, however, direct suckling is of course out of question; moreover, a partition is necessary between the infant and the animal. The principle and not the actual method is shown in Figure 1 of the annexed illustrations. While the cow is separated from the child by a partition or wall so perforated as to permit the passage through it of a pipe conveying the milk, this wall may be that of a nursery containing cribs, as shown in Figure 2. In the latter case, the

milking may be carried out by means of one of the electrical methods in use in large establishments, the milk of one or more cows being pumped directly into a receptacle, which in turn supplies a flask connected by pipes with the feeding bottles of three or more infants. In Figure 2, the lower floor of a foundling asylum (reproduced from one of the floor plans of a wing of the new Barnes Hospital, St. Louis) illustrates the process of direct nursing from carefully watched and frequently tested cows. By connecting these pipes with the hot water system of the institution they may easily be kept aseptic by allowing hot water to run through all connections, receptacles, bottles, etc., immediately before and after they are used for the conveyance of milk.

When the milk requires modification, the addition of water, lime water, etc., it may readily be made by interposing between the infant and the receptacle into which the fresh milk is pumped, a flask into which, beside the added agent, enough milk is allowed to flow for one nursing period. This is shown in Figure 1, the intermediate flask resting on the shelf alongside the baby coach, while the closed receptacle into which the milk is pumped stands on the other or unseen side of the partition. Important in this connection, however, is the fact that the ad-

dition of water to cow's milk is scientifically wrong, its proportion of water being virtually the same, we have seen in the preceding article, as that in human milk. Some cases of athrepsia and malnutrition are undoubtedly traceable to this cause.

While the main features only of the question, as a whole, can be gone over in the present article, enough has been submitted to show that *we have in undiluted cow's milk, used fresh from the udder and possessed, therefore, of its antitoxic properties, another means to reduce the mortality of infants.*

Pasteurization has doubtless reduced the pathogenicity of raw dead milk by destroying some of its bacteria, but as stated by Rosenau (3), it promotes carelessness and discourages efforts to produce clean milk. The farmer deems it unnecessary to be "quite so particular, as the dirt that gets into the milk is going to be cooked and made harmless." It tends to delay improvements, and is at best a temporary expedient which,

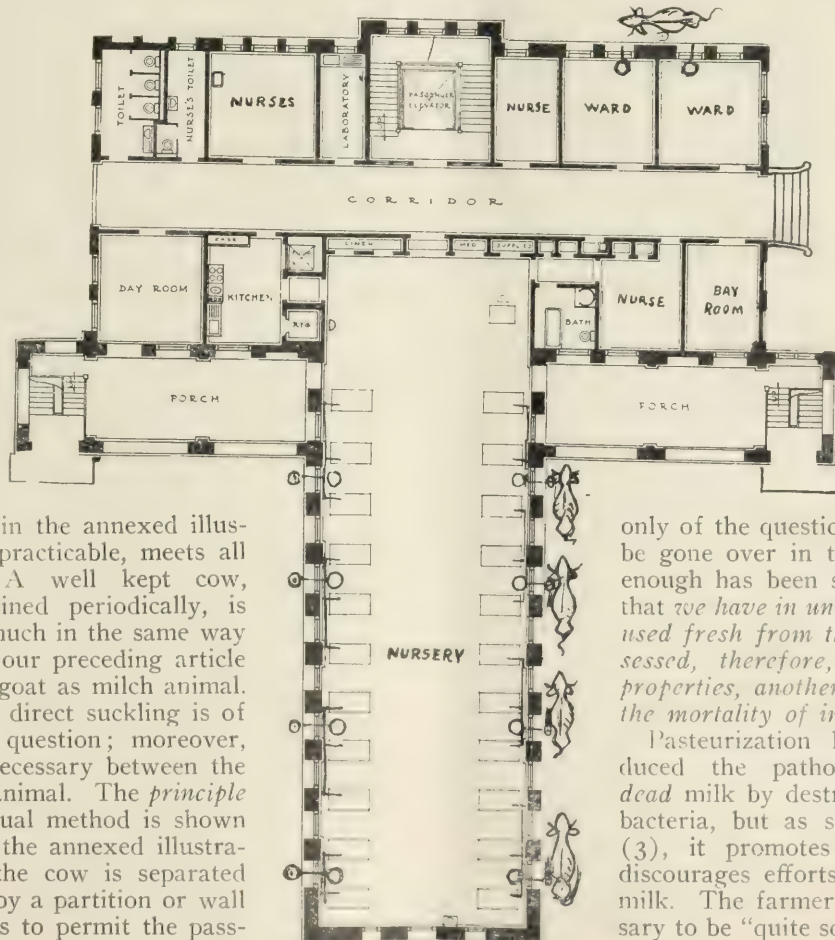


FIG. 2.—Wing of foundling asylum disposed for direct feeding with cow's (or goat's) milk. Cows on right side of nursery, each serving several infants.

though advantageous up to a certain limit, has failed to arrest the appalling mortality among infants. This is because it thwarts Nature's own defensive means by annulling the activity of some of the ferments which prevent infection and intoxication and sustain the functional activity and development of the tissue cells, including those of the various ductless glands.

Partial fresh milk feeding. Immediate feeding with human milk, goat's milk, or cow's milk, being, in the order given, the best available means to safeguard infants, what are we to do when circumstances as varied as they are unfortunate, render their use in the manner best suited for the child, absolutely impossible? Here partial feeding, i. e., small quantities of either of the milks mentioned, may serve a useful purpose.

In the Massachusetts Infant Asylum, according to F. P. Denny (4), it has been the custom to employ a few wet nurses for children suffering from marasmic disorders, the nursing alternating with that of the wet nurse's own children. The marasmic children showed prompt improvement, even though not enough milk had been given them to affect the nurses' own offspring in any way. While this procedure did not prove as efficient as complete breast feeding, it served a useful purpose in protecting infants against infection—sufficiently, indeed, to warrant Denny's carefully digested opinion that it is unjustifiable to keep infants in hospitals unless sufficient breast milk—at least two to five ounces daily, suckled directly—is added to their diet to render them resistant to hospital infection. To this we would add the necessity of providing between these nursing periods *goat's or undiluted cow's milk obtained directly from these animals* by one of the measures we have described. Of the two, however, goat's milk is much to be preferred owing to its chemical attributes which approximate closely, we have seen, those of human milk. Important in this connection is a study by D. H. Sherman and H. R. Lohnes, of Buffalo (5), of the factors which caused goat's milk to agree better with some infants than cow's milk. The babies were selected at random from the inmates of St. Mary's Infant Asylum and Maternity Hospital of Buffalo. The goat's milk used averaged from 1.5 to two per cent. richer in fats than the cow's milk used in the institution. A series of experiments in which test meals were given and withdrawn one hour from the middle of the feeding, showed that the digestion of the cow's milk was slower. The curds of the goat's milk were smaller and more flocculent, corresponding to the appearance in test tube digestion. A greater stimulating effect on the stomach by goat's milk over that of cow's milk was noted, as was also a greater stimulating effect of both compared with proprietary foods prepared without milk. The main conclusions drawn were, that in the child whose resistance was below par, goat's milk agreed better because it was less stimulating, because it contained fewer volatile acids, and because of its more flocculent curds which made it more easy of absorption by some children.

On the whole, modern knowledge imposes upon us the duty to *insure the infant the advantages of breast suckling, i. e., protection against infection,*

and an adequate supply of the chemically unharmed substances contained in breast milk or its equivalents from animals, and through which it builds up the child's tissue cells, including those of its ductless glands.

Of all the ductless glands the thymus is that most morbidly influenced by defective nutrition; its atrophy in infantile marasmus is but the index of a state of things which our profession should no longer tolerate.

In our next article we will consider the relationship between the thymus gland and the mental development, idiocy, etc., of children.

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Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT

January 11, 1915.

Mild Heart Disturbances in Troops, by A. Magnus-Levy.—A considerable number of young soldiers have been encountered who complained of palpitation, feeling of cardiac oppression and slight embarrassment of breathing upon mild exercise. The heart rate was found to range from eighty to 100 with the apex beat forcible and located at or slightly beyond the mamillary line. The first sound was often impure, or associated with a systolic murmur. The second sound was clear, but often accentuated at the pulmonic area. Slight exertion usually increased the heart rate up to 120, and this was followed by fairly prompt return to the previous rate after rest. Such signs and symptoms were regarded as being indicative of a slight decrease in the capacity of the heart for work with a slight degree of mitral insufficiency. No adequate explanation for this cardiac insufficiency is known, but there seem to be three possible ways of accounting for it. The first postulates the previous existence of some slight valvular lesion which only becomes recognizable as the result of overstrain. The second, that the condition is the result of an acute infection, usually of a rheumatic nature. And lastly, that it is merely the physiological response of a normal heart to unaccustomed strain.

Calciuria in Children, by H. Kleinschmidt.—This condition, commonly called phosphaturia, is characterized by the frequent passage of somewhat turbid urine, particularly in the morning specimen. The turbidity is due to the precipitation of calcium carbonate and phosphate. There is an actual increase in the amount of calcium thus excreted. Associated with this condition the child is usually found to be of a very nervous temperament. The condition has been thought to be due to a diminished acidity of the urine or to a diminution in the urinary colloids. Two views as to its etiology are held. The first that there is a primary disorder of calcium metabolism, to which the nervous symptoms are secondary. The second, that the calcium metabolism is the result of a primary nervous disorder. Two cases are recorded, both of which

seem to substantiate the latter hypothesis, and it is well known that the children having this condition are usually from families in which the parents are of unstable nervous constitutions. Alterations in the diet, especially in the direction of a reduction in the calcium intake do not materially reduce the calcium excretion, but, on the contrary, a calcium rich diet may be taken and the condition still be made to disappear if the child is placed under a strict regime of rest and changed surroundings. No measures seem to give more than temporary results in the majority of cases, relapse usually occurring as soon as the child returns to its accustomed home surroundings.

January 18, 1915.

Significance of the Widal Reaction in Inoculated Soldiers, by L. Duenner.—Five of a total of eighty-nine soldiers who had been previously inoculated against typhoid, or typhoid and cholera, gave persistently negative Widal reactions with dilutions ranging from one in forty to one in 640. Of these five, three had received only a single inoculation with typhoid vaccine. All of the remaining men gave positive reactions, a very large proportion responding positively to dilutions as high as one in 320 and one in 640. All of the men in this series were clinically and bacteriologically free from typhoid. In contrast, seven men who had typhoid fever, proved either clinically or bacteriologically, all gave positive Widal reactions with some dilution, except one whose serum was negative when tested in a dilution as low as one in forty. Before the practice of prophylactic inoculation against typhoid the Widal reaction was regarded as one of the readiest means of making a certain diagnosis of typhoid fever, but the reaction has now lost practically all of its diagnostic value among persons who have been inoculated, and resort must be had to the bacteriological demonstration of the typhoid bacillus to substantiate the diagnosis in a clinically doubtful case of typhoid.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

March 23, 1915.

Intravenous Medication in Tetanus, by Barnsby and R. Mercier.—Six out of eight cases of tetanus ended favorably under intravenous use of both antitetanic serum and chloral hydrate. The serum injections were given daily, beginning with a massive amount, fifty c. c., and gradually diminished to ten c. c. Where the symptoms returned after a period of quiet, anaphylactic manifestations upon resumption of the injections were avoided by the previous administration (during the quiet period) of ten c. c. of the serum by rectum. The total amount of serum used ranged between 100 and 350 c. c. Chloral hydrate was used in a five per cent. solution, of which sixty c. c. were given at a dose; in some cases three such doses were administered in a day. The effect of each dose was quiet sleep lasting three hours, after which a marked reduction in the convulsions persisted. After a few days of treatment the patient would sleep seven hours at a time, and wake up only to clamor for another sedative injection. No toxic effects from the chloral were noted. In spite of the original severity of the eight cases, the incubation period ranging from

seven to thirteen days, the affection was apparently controlled in every instance, in the two fatal cases the patients dying from acute cardiac insufficiency.

Prophylaxis of Frostbite, by Orticoni.—Stress is laid on maceration of the tissues through prolonged immersion in water as a factor in frostbite of the feet occurring in soldiers compelled to hold flooded trenches. Protracted pressure by footgear is also a favoring factor, but excellent prophylactic results were obtained by greasing the skin of the feet and legs with the following ointment: Anhydrous wool fat, twenty grams; water, two grams; fat free mustard flour, 0.4 gram. Forty-four infantrymen in whom this procedure was carried out remained free from frostbite, while of 149 men subjected to the same unfavorable conditions but not similarly protected, fifty-two had to be relieved in four days owing to frostbite. Results obtained by inunction of ordinary ox fat were not as good as with the mustard ointment mentioned.

Efficiency of Early Treatment in Tetanus, by Bacri.—Observation in military hospitals showed that in tetanus, immediately after the incubation period, there exists a period of established infection with but slight symptomatic manifestation. During this period three signs already point to the disease: 1, Diminution in the extent of separation of the upper and lower jaws; 2, painful spasm upon separation of the jaws slightly more than usual; 3, marked exaggeration of the patellar reflex. In cases of tetanus discovered in this prodromic stage antitetanic serum is remarkably active, proving in no way inferior to diphtheria antitoxin. Upon systematic daily examination of all the wounded soldiers in a military hospital two cases of tetanus in the prodromic stage were detected. Administration of forty c. c. of antitetanic serum on each of four successive days aborted the disease in both these cases. The knee jerk returned to normal on the eighth day.

PRESSE MÉDICALE.

March 25, 1915.

Simple Methods of Isolating the Typhoid Bacillus from the Living Body, by P. Carnot and B. Weill-Hallé.—In a small U tube with narrowed inferior portion fine sand is introduced to a depth of two cm. The specimen of blood is mixed with ox bile, filtered and sterilized in the autoclave. The bile blood mixture is poured into one limb of the U tube and sterile bouillon into the other, to the same level. The bile prevents clotting of the blood and is, to a certain extent, a selective medium for the typhoid organism. The sand filter in the U tube prevents admixture of bile and bouillon, but allows the very motile typhoid bacilli to pass from the bile culture to the bouillon, with the result that in the case of a positive test, a typical bouillon culture is seen on the following day. Positive results are constantly obtained in the first few days of a typhoid infection, and usually persist throughout the first week.

Some Little Known Complications of Mumps, by Félix Ramond and Gabriel Goubert.—In a series of 115 cases, epididymitis was met with in twenty instances, in eighteen of which it was independent of orchitis. It began about the sixth day of the

disease and lasted fifteen to twenty days. In half the cases it was accompanied by distinct swelling of the organ, which in the remaining instances was merely tender. Inflammation of the vas deferens was noted in forty cases, generally independently of epididymitis or orchitis. It began on the second or third day of the disease, and was bilateral in twenty-six cases. Twenty-three cases showed prostatitis. Enlargement of the lymph nodes of Scarpa's triangle was met with in ten cases, and of those of the iliac chain in six cases. Swelling of the tonsils took place in forty cases. Diarrhea was noted for two or three days in sixty cases. In two cases appendicitis suddenly developed on the tenth day; recovery in two weeks took place in both instances under rest, dieting, and local application of ice.

RIFORMA MEDICA.

April 24, 1915.

Primary Degeneration of the Commissure of the Brain, by P. Guizzetti and G. Tomasinelli.—This condition, first described by Marchiafava in 1897 is always caused by chronic alcoholism and is comparatively rare, as in 13,000 autopsies at the university of Parma only one case was found.

Cultivation of Tetanus Bacillus from Blood of Tetanic Patients, by G. Sinigaglia.—Blood taken from a case of tetanus was added to pancreatin broth and incubated; on the fourth day typical bacilli were recovered from the cultures. This is another instance added to those already reported, and tends to verify former experiments on which doubt was cast by many recognized authorities. It seems to strengthen the modern contention that bacteriemia is a phase of tetanus. This bacteriemia would not seem to be a true septicemia, but only a transitory condition, its presence or absence not having any effect on either the prognosis or the course of the disease. Tetanus and diphtheria have long been considered the two typical infections with localization of the infective bacteria at the point of infection, and a distribution of toxins alone through the circulation, thus apparently breaking the usual rule of bacteriemia in infectious diseases. However, the not infrequent presence of both these bacilli in the circulating blood and in the urine has been demonstrated.

Syphilitic Meningomyelitis, by U. Scinicariello.—This case in a man aged thirty-seven years is worthy of note on account of its complex symptomatology, its duration of ten years, and the short interval between the initial infection and the appearance of the nervous symptoms. Within forty days after the appearance of the primary lesion there was disturbance of vision with diplopia, rapidly followed by ataxia and incontinence of urine.

SEMANA MÉDICA.

April 1, 1915.

Incrustation Cystitis, by E. Pozzi.—This is a rebellious form of cystitis which cystoscopically shows alteration in the bladder wall with incrustation and deposit of phosphates and urates. Ulceration is not necessary for such alteration. True incrustation is shown by the fact that the act of detaching the deposits strips off the epithelium, and microscopically there is observed intimate attachment of the crystals to the epithelial cells. It must be

distinguished from vesical calculus and the diagnosis is made by the use of Guyon's explorer and the cystoscope. The immobility and attachment of the mass to the bladder wall is characteristic in incrustation. The treatment most successful is instillation of silver nitrate in solutions of one to three per cent., though gentle curettage may be needed to detach the incrustated masses. Prognosis is not serious except that the course is prolonged. Two cases are described of this condition, in one of which suprapubic cystostomy was resorted to for drainage.

Perforation of Appendix in Pregnancy, by R. F. Coulin.—Acute appendicitis in pregnancy has its characteristic symptoms unaltered by gestation. Mortality is thirty to forty per cent.; fetal mortality still higher; and when perforation occurs followed by general peritonitis the death rate is greatly raised. In peritonitis the fetus almost invariably dies *in utero*, and brings about premature delivery. Temperorizing methods are extremely dangerous, though advocated by some, and the only justifiable procedure is immediate surgical intervention. One may conclude that the rapid advance of acute appendicitis in pregnancy with its possible fatal results calls for immediate surgical intervention, even in desperate cases of general peritonitis; spinal anesthesia in such cases is a failure, and the use of ether intraabdominally in general peritonitis presents great and encouraging possibilities, as evidenced by its results in eight cases reported by Coulin.

Relation between Nasal Respiration and Phthisis, by A. Philibert.—Chronic nasal affections play an important part in pulmonary tuberculosis, consequently correction of such conditions must be an important factor in the prevention of that disease, as well as in its actual treatment. The necessary pulmonary ventilation cannot be obtained without perfectly free nasal respiration.

BRITISH JOURNAL OF CHILDREN'S DISEASES.

May, 1915.

Suppurative Parotiditis Following Pneumonia, by J. Porter Parkinson.—A boy, aged three years, having signs of resolving pneumonia was admitted to the hospital. Five days later the temperature which had been in the neighborhood of 99.5° F. reached 104° F. No signs in the chest were demonstrable, but on the following day a hard, tender swelling appeared in the right parotid region. Three days later a deep incision below the right ear reached an abscess and a small amount of pus was removed. The smear showed pneumococci and a few staphylococci. The temperature fell and the recovery was uneventful. The infection probably took place through the blood stream as there had been no sputum coughed up.

Myelitis in a Child, by Hugh T. Ashby.—The child, aged five and a half years, had complained of vague pains in the chest and legs. The patient was slowly losing the use of his legs and on admission there was paralysis of both legs and back with anesthesia extending from the toes to a line drawn around the chest just below the nipples. The temperature which had been fairly normal during the course of the disease rose just before death. The heart and lungs remained normal. There was no history of any infectious fever which is the rule in

these cases. The etiology of this case is obscure as the Wassermann was negative, there was no spinal caries nor injury, and the case was unlike an anterior poliomyelitis or a spinal growth.

An Unusual Case of Infantile Hemiplegia, by E. G. Fearnside.—The patient, a boy aged seven and three fourths years, had a fit when three years old and was comatose for five days. When he recovered consciousness it was found that he was hemiplegic, the left side being the one affected. Two weeks after this attack he was admitted to the hospital. The right ear was discharging through a large perforation in the drum. Rotation of the head on the neck caused pain but there was no cephalic retraction. The left upper extremity was flaccid and could not be moved voluntarily, the left lower extremity was stiff, and the left half of the face was also paretic. The day after admission two ounces of cerebrospinal fluid were obtained by lumbar puncture. The fluid was clear, sterile and contained no excess of cells. The boy gradually improved and when he left the hospital five weeks later was able to walk and could use the left upper extremity in feeding himself. Three weeks later otorrhea appeared in both ears and after two weeks he was readmitted to the hospital, remaining for a period of three weeks. At the time of his discharge he presented a characteristic left hemiplegia, affecting principally the upper extremity. Since that time he has had occasional fits. The attacks begin in the left arm and spread to the forearm and hand. There is no loss of consciousness and the attacks are typically Jacksonian. The left upper extremity is distinctly smaller than the right. In addition to the Jacksonian convulsions he has frequent momentary attacks of petit mal. An early diagnosis of polioencephalitis had been made but the absence of any cellular excess in the sterile cerebrospinal fluid was against such an opinion. The cause of the symptoms was probably some local septic cerebral trouble consequent upon chronic otitis media.

BRITISH MEDICAL JOURNAL.

May 8, 1915.

Sterilization of Water by Chlorine, by J. J. Harper Nelson.—The apparatus consists of two bottles, one of about thirty ounces capacity, the other holding about two ounces. The larger is fitted with a double perforated stopper through which are passed two glass tubes, one short, the other reaching nearly to the bottom. Both are supplied with stop cocks. The long tube is connected with a short tube inserted through a stopper in the small bottle. Twenty ounces of water are placed in the large bottle and two drams of concentrated hydrochloric acid in the smaller along with fifteen grains of powdered potassium chlorate for the liberation of nascent chlorine and chloric dioxide. These gases are passed into the water in small amounts at a time with frequent shaking. This yields a solution of the two gases of such strength that when one ounce of it is added to five gallons of water, a concentration of chlorine gas of one in 500,000 is obtained. Repeated experiments with naturally and artificially contaminated water have

proved that an exposure for half an hour to this concentration of chlorine suffices to sterilize it completely of all pathogenic organisms, particularly of the fecal group. The entire process consumes little over half an hour, and can be easily carried out effectively even by an inexperienced person. The amount of chlorine in the finished water does not impair its palatability or its potability. If the water is very turbid, it can first be cleared by sedimentation over night with alum; it is then treated with the chlorine solution. An outfit has been designed which weighs only twelve pounds and which can be easily carried on a man's back. This outfit contains sufficient material to sterilize 19,800 gallons of water without replenishing, or enough to give each of 200 men a gallon of drinking water a day for seven weeks. The process is inexpensive, rapid and effective.

Birth Palsy, by Harry Platt.—The symptoms, physical signs and treatment of this condition are discussed; particular stress is laid upon the probable cause of the lesion and its precise anatomical nature. That it is a primary lesion of the brachial plexus, usually involving the fifth, or the fifth and sixth cervical nerve roots, is substantiated by clinical, pathological, surgical, and experimental evidence. It has been shown that traction on the head with the shoulders fixed is capable of producing such a lesion. On the other hand, there are certain symptoms and signs at times associated with birth palsy which have led to the belief that the lesion is primarily either a dislocation of the head of the humerus or a fracture of the humerus at its upper epiphyseal line. In some cases both lesions are held to be present. Analysis shows that one or another of these latter lesions is actually present in a small proportion of the cases only. In view of these facts it seems unreasonable to adhere absolutely to either explanation to the exclusion of the other, as is done by the opposing schools, but, on the contrary, one is forced to accept both as possible explanations and to endeavor in a given case to discover which type of lesion is actually present.

LANCET.

May 8, 1915.

Etiology of Rickets, by Leonard Findlay.—Attention is directed to the fact that the examples of experimental and spontaneous rickets in animals are not all identical with the disease as found in the human race. The bones show a deficiency in calcium, and in the active stages of the disease the calcium metabolism of the body is perverted. There is principally an increased output of calcium in the urine and feces, which may actually exceed the calcium intake. Among the hypotheses to account for this perversion the two most commonly accepted are: 1. A deficiency of calcium in the diet; and, 2, disturbance of metabolism, probably in the nature of a lack of a specific hormone, which prevents the utilization of the calcium. The first theory is controverted by the fact that the diet of the average rachitic infant is not actually deficient in calcium, as shown both by the author's observations and those of others. On the other hand, the author was able to produce the disease in animals by confinement without sufficient exercise, although they

were given an abundance of available calcium. Further, the administration of calcium does not check the disease in man. There was no evidence that deficiency in any article of diet was in any way directly related to the development of either experimental or spontaneous rickets. On the belief that confinement with insufficient fresh air, coupled particularly with lack of abundant exercise, was an important causative factor, the author has made extensive parallel studies of the living conditions of a large number of families in which there was no rickets and an equal number in which rickets was present, including only the active cases of the disease. The duration of breast feeding was found to have no influence upon the occurrence of the disease, and the same was true of the occurrence of intestinal disorders. It was found that the earlier children in the family were attacked much more frequently than the later ones. The probable explanation of this lies in the fact that the later children get more outdoor air and exercise through being cared for largely by the older children instead of by the mother, who is much confined to the house. A study of the available air space in the house allowed for the child showed that the smaller the allowance the greater the frequency of rickets. Lastly, children who were not taken out of the house much showed a much greater frequency of rickets than those who were taken out frequently. These studies, therefore, seem to confirm the belief that lack of fresh air and exercise is the most important etiological factor in the production of rickets. This is substantiated by the fact that in those families in which the disease is practically unknown, the children lead outdoor lives the greater part of the time, and in those communities from which the disease is absent, both in man and domestic animals, the mode of life is also mainly an outdoor one.

JOURNAL OF LARYNGOLOGY, RHINOLOGY AND OTOLOGY.

April, 1915.

Aspergillosis of the Nasal Accessory Sinuses, by Herbert Tilley.—Marked nasal obstruction, associated with discharge of a mucopurulent fluid, the occasional expulsion of small masses of a whitish gray, semitranslucent, viscous material, and neuralgic pains in the cheek and face are characteristic symptoms. The examination shows the mucous membrane to be pale, swollen, and edematous, and not affected by strong solutions of cocaine. The discovery of the mycelium in any of the expelled portions of the gelatinous material is conclusive.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

May 15, 1915.

Gastric and Duodenal Ulcer; Medical Cure by an Efficient Removal of Gastric Juice Corrosion, by B. W. Sippy.—The method consists in shielding the ulcer from the corrosive action of the gastric juice, by neutralizing all free hydrochloric acid by means of frequent feedings and careful use of alkalies; rendering the gastric juice inert from 7 a. m. until about 10 p. m. Excessive night secretion, if it occurs, is removed each night until irritability of the gastric glands has subsided. This applies to cases of duodenal and pyloric ulcer which have been asso-

ciated with stagnation of food and secretion for one or two months, and longer. Such cases are almost invariably attended by a more or less copious continued secretion during the night, which should be removed by aspiration two or three times each night, if necessary. Usually, after three or four days of accurate control of free acidity, the excessive night secretion disappears; subsequently the normal quantity (about ten c. c.) of gastric juice present during the night is left undisturbed. Experience with the method in all types of individuals, under widely varying conditions, has abundantly demonstrated that the corrosive action of the gastric juice can be practically annulled until the ulcer has healed. The patient remains in bed for from three to four weeks, unless some serious complication is present; some or all of his regular work may be resumed at the end of four or five weeks. Many soft and palatable foods may be used; it is customary for the first two or three days to give three ounces of a mixture of equal parts of milk and cream every three hours from 7 a. m. to 7 p. m.

Treatment of Closed Fractures, by P. S. Campiche.—Operations on recent, closed fractures, as they are done today—wholesale and indiscriminately—are in most instances entirely unnecessary. Most fractures do not require operation; conservative methods should be employed, and will probably succeed in ninety per cent. of cases. Operations on a large scale by chance operators or amateurs are responsible for bad results, and even eminent surgeons, operating on scientific indications and with asepsis, have recorded instances which illustrate the ever present danger of endogenous infection from the skin of the patient—a danger which no method of disinfection has succeeded in completely avoiding. A foreign body, especially when large, interferes with the production of a good callus. Operation should be reserved for really irreducible fractures, and employed even here only when actually needed—that is to say, when conservative methods have been found, or are known on the authority of many experienced surgeons to be inefficient in securing good functional results. Moreover, the operation should always be the very lightest compatible with a good result. A simple incision with a few manipulations will often suffice to replace correctly the fragments; if an internal fixation is necessary, the minimum of foreign material should be used, preferably a temporary silk or an absorbable suture. The best time for operation, the highest authorities have shown, is after the first week, when much of the dead material has been absorbed and the bone and periosteum have begun to show signs of new life and proliferation. The author states that he would not as a rule operate before the end of the first week; he cannot approve of the practice of operating on the first or second day; reduction by operation is just as easy after a week or so, while the risks of infection are then considerably less.

Celluloid Tube in Finger Injuries, by J. S. Davis.—A properly shaped piece of celluloid, after being soaked in mercuric chloride solution, one in 1,000, is sponged off with ether or alcohol. The stump having been painted with tincture of iodine, the celluloid is wrapped around the finger and secured with narrow adhesive strips; a tube thus

being formed which is slightly smaller at its free end than at the base. When the tube is properly adjusted it will hug closely the edge of the wound, and will gradually become larger until it impinges on the first interphalangeal joint. The celluloid may extend as far beyond the finger tip as is needful; it also serves as a splint for the finger and protection for the wound.

MEDICAL RECORD.

May 15, 1915.

Medical Aspects of Cancer, by L. D. Bulkley.—No single cause of cancer has yet been demonstrated. The prevalence of cancer varies among different peoples; it has increased in proportion to the consumption of meat, tea and coffee, and alcohol. Wilson has shown that with the increase of prosperity and wealth, leading to self indulgence and indolence, cancer has increased. Nerve conditions also have been found by many to be an important element in its production, and the great nervous strain accompanying modern civilization must be reckoned among its causative factors, possibly through its effect on metabolism. The cancerous individual manifests in his general system grave aberrations from the normal. A local irritant may be the exciting cause of the aberrant action of some particular cells, but the local irritant cannot explain why, when once started by local injury, the cells should pursue such an aggressive course. The reason is found, as Sir Astley Cooper and others have believed, in some faulty condition of the system; which is now shown to be from a perverted metabolism, due to various causes. It would seem that for the development of the local manifestation of cancer (the tumor or new growth), three elements are requisite: 1. Predisposition or suitable blood condition; 2, a local stimulation or irritation of the part affected; 3, the site of an embryonic rest. As to the matter of prophylaxis, this depends on dietary and hygienic rules. Simple living, perfect mastication, reasonable exercise, and avoidance of all excesses, with the maintenance of healthy habits of life, especially as regards bowel action. The greatest safety lies in a vegetarian diet, with the single exception of butter. There is no single remedy for cancer. The medical treatment can be put in a few words, although in individual cases it involves attention to the minutest particulars; no detail of the patient's life can be too insignificant to have some bearing on the deranged metabolism. Almost invariably cancer patients are constipated, and have long been so, and it might almost be said that the toxins produced by the millions of microorganisms generated through intestinal stasis and fecal putrefaction are the cause of cancer. A thorough volumetric analysis should be made weekly of the urine, which should be measured and recorded daily. The kidney secretion has been found to be at fault in every case studied, and alkalies form a very important part of the treatment.

Early Diagnosis of Streptococcic Sore Throat, and the Effect of Vaccines in Its Treatment, by R. R. Mellon.—An early examination of cultures from acute sore throat is valuable because it precludes an overgrowth by contaminating organisms, and because it often gives a clue to the virulence of

the infecting agent. The acute cases of streptococcic sore throat respond very quickly and decisively to a vaccine of proved immunizing powers. The author disclaims an intention to laud the merits of stock vaccines, since, generally speaking, an autogenous vaccine is the logical therapeutic agent, but remarks that various strains of streptococci often yield much better results than are observed with autogenous vaccine. If one is fortunate enough to have such strains, there is no justification for the autogenous preparation; otherwise it would seem advisable to obtain the latter as soon as possible. It is true that many cases apparently end favorably without any treatment, but if the many sequelæ could be followed in every instance, we might revise our notions as to the self limiting ability of this disease.

SOUTHERN MEDICAL JOURNAL

May, 1915.

Neuroses in Their Relation to Chronic Infections, by J. A. Hodges.—The three chief neuroses are neurasthenia, psychasthenia, and hysteria; the first being of exogenous origin, and the two latter essentially endogenous in character. Sufficient cases have been studied to prove that while a few of these diseases are due to chronic infections, most of them are purely psychical in origin, and treatment, to be efficient, must vary with the cause. The uterus and its annexa have been most frequently under suspicion, particularly when some form of hysterical nervousness was investigated, but it seems as if lesions of these organs are not more likely to act reflexly than those of other organs. There is no necessary relation between pelvic disease and hysteria or neurasthenia, even when the two affections coexist; and though surgery may sometimes be demanded for other reasons, it cannot be expected that it will cure the nervous illness. Chronic infections of the male urethra, seminal vesicles, etc., have been supposed to play as large a part in the causation of psychoneuroses as those of the female pelvic organs, but the one belief appears to be as much due to defective observation as the other. The disturbances of gastrointestinal function due to absorption of toxic substances are undoubtedly in some instances a cause of vascular infection and consequent psychoneurotic manifestations. The supposed infection from arthritic diseases has never proved to be the cause of neuroses in many cases coming under the author's observation, but chronic infection as a result of pyorrhœa alveolaris has apparently been the source of a considerable number of neuroses studied in the past two years.

Symptomatology, Etiology, Pathology, and Treatment of Pellagra, by J. C. Johnson.—Pellagra may be regarded as a disease, infectious in origin, of perverted metabolism, having its first expression in the epithelial structures of the alimentary tract. The remedies which the author has found most efficient are tincture of ferric chloride, given in a mixture with potassium chlorate and essence of pepsin, and arsenous iodide, one twenty-fourth grain, in a capsule with calcium sulphide, cerium oxalate, and powdered extract of nux vomica. In the management of the various derangements met with in the digestive system, such as diarrhea, nausea, etc., the treatment is, in general, the

same as it would be without pellagra. As to the nervous system, the meaning and possibilities of the minor manifestations depend more or less upon the psychological relation of the physician to the patient. When complete confidence has been established, many of the lesser obstacles can be removed without the aid of drugs. Patients should be made to feel that no stigma attaches to their disease, and be fortified by the faith which the physician himself shows in the final outcome of the treatment. There is nothing which promises absolute relief from the dizziness; all doubt should be removed as to the possibility of its being induced by aural disease or astigmatism. If it is attended by much weakness, aromatic spirit of ammonia may be given with good effect. Fatigue and agents which depress or overstimulate are always harmful. For sleeplessness or excitability sodium bromide is usually sufficient. When headache is severe, and not relieved by simple anodynes, opiates are indicated. The more serious disturbance of the nervous system opens a field of many possibilities; as a rule, when insanity has developed the patients have rapidly succumbed. For the eruption, topical applications cannot be depended upon.

Proceedings of Societies.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

*One Hundred and Ninth Annual Meeting, Held at
Buffalo, April 27, 28, and 29, 1915.*

The President, Dr. GROVER W. WENDE, of Buffalo, in the
Chair.

(Continued from page 1085.)

Role of the Superior Mesenteric Vessels in Abdominal Disease.—Dr. J. N. HALL, of Denver, Colorado, had seen several cases of marked chronic dilatation of the upper portion of the duodenum in connection with narrowing below from the pressure of the superior mesenteric vessels, but his diagnosis in these cases had generally been pyloric or duodenal ulcer. He was not satisfied that the closest accuracy was possible. One such obstruction was corrected by the performance of a duodeno-duodenostomy by Doctor Freeman. The exact diagnosis was less important than the realization that a mechanical type of duodenal obstruction existed and demanded surgical relief. Bloodgood had had good results from resection of the right half of the colon with a portion of the ileum or from ileocolostomy. The exact method of relief concerned the surgeon rather than the internist. The statement of Spence and Graham that possibly the cyclic vomiting of children and the so called hysterical vomiting might at times be due to chronic gastro-mesenteric ileus, deserved the closest attention. Similar obstruction might occur below the duodenum, as in the following case operated in by Doctor Freeman:

A man, thirty-three years of age, had a gastro-enterostomy performed for duodenal ulcer four years before, and a sharp attack of appendicitis two months before examination. Patient had nausea and vomiting, almost fecal in character and amounting to several pints on one occasion. The bowels

had not moved for eighty-four hours; pulse 60; temperature 100° F. Patient had obtained some relief by lying on his abdomen. There were present slight rigidity and tenderness to the left of the navel, with some distention in this region. Under the diagnosis of partial obstruction in the middle portion of the small bowel, the patient was operated on. Several feet of the upper small intestine were much distended, while below a point at which the ileum was compressed under the root of the mesentery, and the superior mesenteric vessels, the gut was empty. The bowel was practically uninjured. The anastomotic opening was patent; the induration about the duodenal ulcer had disappeared and everything seemed entirely normal. The appendix was removed, the adhesions were separated, the patient was instructed to lie in the right prone position, and a normal convalescence followed.

Immunization against Measles.—Dr. CHARLES HERRMAN, of New York, stated that infants under five months of age were relatively immune, and in exceptional cases in which they were infected with the disease, it appeared in a mild and atypical form. One attack of measles usually protected for life. The nasal discharge contained the virus twenty-four hours before the appearance of the eruption. Having convinced himself that infants under five months of age were relatively immune, he obtained the consent of a mother to inoculate her infant four months old. It seemed logical to assume that as the infant at that age was not absolutely immune, direct inoculation would convert a temporary into a more or less permanent immunity. At no time did the child present any evidence of injury and he then proceeded to inoculate others. The material for inoculation was obtained from otherwise healthy children, taken twenty-four hours before the eruption of measles appeared. A small quantity of the mucus from the nose was collected on swabs of cotton. Only perfectly healthy infants under five months of age were inoculated. The swab was applied gently to the nasal mucous membrane. Forty infants were thus inoculated. The majority showed no distinct reaction, fifteen had a slight rise of temperature, and in a few instances a small number of spots were noted on the face or body. Of the forty cases, four children over one year of age had come in contact with cases of measles and had not contracted the disease.

Pyelitis; Its Clinical Significance.—Dr. EDWARD J. WYNKOOP, of Syracuse, stated that in girls the infection might gain entrance through the urethra more often than in boys, or it might be carried from the intestinal tract. It might occur as a complication of some other condition, or it might be an independent disease. The bladder need not necessarily be infected. The classical symptoms of chill, fever, and pain in the kidneys might not be present. In relapsing cases the chill might not be repeated. In any case with irregular fever, intestinal symptoms, frequent micturition, and anemia, it was well to bear in mind the possibility of pyelitis. In examining the urine a twenty-four hour specimen only should be taken. Symptoms referable to the urinary tract and anemia should always make one suspicious of pyelitis. This was a condition more frequent than they had believed and should be borne in mind, as not every illness in children was to be

attributed to the intestinal tract. In the treatment of pyelitis he had found hexamethylenamine and potassium citrate very valuable. His preference was for the use of potassium citrate. Plenty of water and attention to hygienic rules were a great help. Vaccines had not proved as effective as might have been expected. The treatment should be persisted in as long as pus was found in the urine, even though the symptoms had disappeared.

Dr. W. L. CARR, of New York, stated that in most instances pyelitis was an infection of the colon bacillus type, but the peculiarity of the attack required some consideration, as it did not always seem to be associated with intestinal disturbances that attracted attention, nor did it always show itself after a colitis. Many of the cases were seen after influenza, yet cultures of the urine showed pure colon infection. While there was a preponderance of cases among females, there were more cases among the males than had hitherto been supposed. As the condition in the male could hardly result from an ascending infection, it was well to study more carefully the influence of the blood stream infection. During the acute attack he used irrigations and such laxatives as were called for. The elimination of milk from the diet, if there was constipation or foul stools, was most important, and the administration of castor oil at such a time was of unquestionable benefit.

Basal Celled Epithelioma.—Dr. ROBERT F. BARBER, of Brooklyn, stated that the neoplasms were called by some surgeons adenomata akin to carcinomata. Of the 200 examined by Doctor Barber, fourteen showed epithelial pearls and only two epithelial bridges. They were said to spring from the germinal cells of the skin and were described as having different potentials. These were called the cellular potential, evident in the various types of tumors, glandular potential, accounting for the cystic tumors, and the pigment potential manifested by the pigment in growths. The types were described as, 1, simplest—a nest of cells in the derma; 2, alveolar, with a small amount of stroma; 3, scirrhus, with a large amount of stroma; and, 4, adenomatous, with glands and cysts. The increase in the connective tissue was interpreted as evidence of inflammation. Previous lesions were called pimples in forty-four, warts in five, and burn in one, and the pressure of eyeglasses in one. The frequency in these cases was 100 in women and 100 in men. The age in the average case was fifty-six years. There were two in the third decade and four in the fourth decade. The average preoperative duration was six years, the greatest being twenty-eight years and twenty-five years respectively, the shortest six weeks. The mean size of the lesion was three cm.; the largest eight cm.; the smallest under one cm. A table of the duration of years in the tumors of the various types was submitted. The surface form was ulcerated in the majority of growths, occasionally elevated as nodules, rarely pedunculated. The elevated and pedunculated forms were prone to cystic degeneration.

Cancer of the Bladder.—Dr. J. BENTLEY SQUIER, of New York, stated that operative measures for cancer of the bladder were palliative, excision, and resection. The abnormal cell was said to be six

times as resistant as the cancer cell. The dose of radium was said to be not worked out completely. It was not known within what range and with what dose a cancer cell might be killed. Two inches was mentioned as the limit of expected radium influence upon the cancer cell. The great expense of radium was a serious objection to its use. Most vesical tumors were papillomata and should have the radium operatively buried within them to inhibit their growth. Radium might be used postoperatively where there was some doubt of complete removal of tumor cells. Heat was called ineffectual because the cancer cells were buried in the perirectal, perivesical spaces and glands, and were therefore inaccessible to the applied heat. It was very essential to remove at times ureterovesical openings and internal meatus, and in the event of muscular invasion of the bladder by the tumor, to remove the glands as well. The vesical neck should not be resected. It was very difficult to diagnose cancer of the bladder through a cystoscope, and often impossible after the removal of a piece of the tumor. Fulguration was a method of treatment that should be resorted to in cases of benign growths.

Hydrocephalus; Later Experiences in Its Treatment by Cisterna Sinus Drainage.—Dr. IRVING S. HAYNES, of New York, pointed out that the injection of phenolsulphonephthalein provided a means of determining something in reference to the type of case with which one was dealing and whether operation promised hope for alleviation of the condition, and also the type of operation to be performed. He had operated in twelve cases, all but two of which were total blindness. The only logical means of draining the cisterna sinus was in through the blood stream. This he was able to effect by means of a silver cannula with a short arm and a long arm at right angles with each other. While he had been able by this method to establish drainage and in some cases to improve somewhat the contour of the child's head and to prolong life, he was by no means enthusiastic because there seemed to be little or no improvement in the mental or physical condition of these children.

Dr. G. R. PISEK, of New York, stated there were certain types of hydrocephalus, some operable and others not. It should be borne in mind that these were surgical experiments, and that the cases he had sent to Doctor Haynes were absolutely hopeless. If they had taken these cases early, made the phenolsulphonephthalein test, and employed the type of drainage that was indicated, the results might have been better. If it were possible to get the child before he was damaged mentally, or after an attack of acute meningitis, when hydrocephalus developed as a complication, this operation might offer hope of accomplishing something. The technic was not simple and required a surgeon skilled in brain surgery.

Dr. CHARLES W. HENNINGTON, of Rochester, stated that the operation described by Doctor Haynes seemed to be in line with what he had found in laboratory work in hydrocephalus. Curschmann in his pathological studies had shown the absorption of the tufts and villi into the longitudinal and other sinuses. It seemed that in this operation they had the solution of the problem as to whether the dura and arachnoid should be punctured from the reverse

side. He agreed with Doctor Pisek that if these cases were brought early for treatment and the phenolsulphonephthalein test employed to determine the type of obstruction, some good results might be obtained.

NEW YORK PSYCHIATRICAL SOCIETY.

Stated Meeting, Held January 6, 1915.

The President, Dr. WILLIAM L. RUSSELL, in the Chair.

A State Policy for Dealing with Mental Deficiency.—Dr. THOMAS W. SALMON called attention to the fact that various plans of action looking toward, 1, the prevention of mental deficiency; 2, the more rational dealing with mental deficiency as a source of crime, delinquency, and dependence; and, 3, the provision of more humane and effective care and training of the mentally defective, were being prepared in different States. Many commissions had made cursory surveys of the situation as a whole in various parts of the country and a few careful studies had been made of specific phases of the subject. Legislation dealing with varied aspects of care and prevention had been proposed, and not a little had already been enacted. It was believed that the New York Psychiatric Society could perform a most useful service at this time by preparing and publishing for the information of the public a statement giving clearly some of the fundamental conceptions upon which they believed a sound State policy for dealing with mental deficiency should be based, together with specific suggestions for action by the legislature. The committee appointed to prepare an outline of such a statement for discussion by the society had submitted a short summary of the more important consequences of failure to provide for the mentally defective, and suggestions for constructive legislation for dealing with the problem. It was pointed out that the social consequences of mental deficiency were crime and delinquency. A large amount of evidence had been collected to show that many boys and girls in institutions for juvenile delinquents were mentally defective. The proportion could not be definitely stated, as the results of examinations were not equally trustworthy, but it had been found to vary from ten to eighty-nine per cent. of the persons examined. The examination of prostitutes in wards in general hospitals, in detention homes, and in reformatories and training schools showed a large proportion of mentally defective persons, and it was equally true that a considerable proportion of adult criminals were mentally defective. The presence of such a large proportion of mentally defective persons in penal and reformatory institutions was undesirable, because it was unjust to punish persons who were not responsible for their acts, and because methods of reformation and discipline and industrial training which were successful with criminals and delinquents of normal minds, were ineffective with those who were mentally defective. Thus it was both inhuman and uneconomical to confine such mentally defective persons in such institutions. The presence of so many mentally defective persons among those accused of crime interfered with the administration of justice. The failure to recognize mentally defective children and to deal adequately with them, was an oversight of an ex-

cellent method of preventing crime. The presence of mentally defective persons in the community who, through volitional or emotional defects, were unable to exercise such control in sexual life as law and custom demanded, or to protect themselves from others, was an important source of moral contamination and in the spread of venereal disease. Cruelty to children was known in many cases to be due to mental deficiency of parents.

Evidence was also available showing that poverty and the problem of the chronically employed were frequently dependent on mental deficiency. Mental deficiency was also the underlying cause of vagrancy, alcoholism, drug addiction, and illegitimate pregnancies. While the proportion of mentally defective children in the regular classes of the public schools was not known, it was known to be large enough to interfere very seriously with the work of the educational system. High infant mortality, neglect of children, industrial and traffic accidents could frequently be traced to mental defect. Such a list of wrongs a this unfortunate class inflicted upon society might be greatly lengthened, but these were sufficient to indicate the heavy penalty which was being paid for failure to face this problem squarely and to deal with it with enlightenment and humanity.

In attempting to outline a system of dealing with the problem of mental deficiency in its legal, administrative, and institutional phases, the committee stated as its earnest conviction, that a large and profitable field of research existed, and that a satisfactory solution of the problem must wait until careful studies had cleared up questions which now obscured the controversy. The most thorough investigation of the problem of mental deficiency ever undertaken, was that made by the English Royal Commission on the Care and Control of the Feeble Minded from 1904 to 1908. This report showed strikingly the waste of national resources and the grave menace to public safety which neglect of the duty of providing for the mentally defective involved. As finally passed in 1913, this act constituted a remarkable foundation of law upon which to develop a system of care and protection of the feeble minded. The recommendations presented were based in part upon this notable piece of legislation, though much was also based upon the best features of American legislation for the confinement and care of the insane. It seemed to this committee that the task of putting into operation a new and comprehensive law for dealing with mental deficiency, of developing different types of institutions, and of carrying out plans for securing adequate protection of the mentally defective, were so important that they should be intrusted only to a commission created especially for their performance and composed of the best qualified persons which the State could secure. This work was not a proper function of the State board of charities. The head of such a board should be a physician trained in psychiatry, and medical men should fill the important executive and administrative offices. The salaries paid should be commensurate with the importance of the work, and should be such as would attract men who were qualified and would devote their lives to the solution of the very difficult problems that came before them. This department should be safeguarded from political interference or control. The

head of this board and the chief executives of the State hospital commission, the State board of charities, the State department of education, the State department of health, and of the prison commission should constitute a joint commission, which should meet at stated intervals to consider matters in which the different departments had a mutual interest. For the administration of a mental deficiency law, existing local authorities should be utilized; it seemed that for this purpose, city and State health officers should be employed. Such a provision would do more than any other method to remove the stigma that clung to the feeble minded. The general powers of the central board should be in supervising the work performed by local authorities, in supervising public institutions for the mentally defective, as the State hospital commission supervises State hospitals for the insane; in supervising the enforcement of the provisions in the mental deficiency law, relating to the commitment, registration, and protection of the mentally deficient; in licensing and inspecting private institutions for the mentally defective, and in encouraging research into the medical, social, and economic relations of mental deficiency. The commission should formulate plans for the development of the State care of the mentally defective, and present estimates for both immediate and prospective needs, should provide for the deportation and removal of alien and nonresident mental defectives, and should see that the property of such defectives was properly administered. The powers and duties of local authorities should relate chiefly to the notification of mentally defective persons, their commitment and registration, their care pending admission to institutions, and enforcement of the provisions in the law for the protection of the mentally defective in the community.

Complete State care of the mentally defective was believed to be essential and should be secured by a provision in the State constitution. The erection of new institutions should be made possible by a bond issue. The law should provide that no mentally defective person could be detained longer than a very short time in an almshouse, jail, prison, or institution for juvenile delinquents. The types of institutions suggested were, 1, State institutions for the continued care of committed cases, and, 2, State intermediate institutions for the reception, study, and classification of new cases. The institutions for continued care should consist of a parent institution and a number of satellite industrial and farm colonies. All bedridden and infirm and strictly custodial cases should be kept in the parent institution. Proper regulations for the transfer of inmates from one group to another should be provided. Provision should also be made for the boarding out, under proper guardianship, of milder cases of mental deficiency. The law should make it the duty of poor authorities, police authorities, magistrates, educational authorities, and the heads of various institutions to bring all persons apparently mentally defective to the attention of the local health official designated to provide for their examination, commitment, and supervision.

In well conducted institutions for the mentally defective, these misfits would be given for the first time a chance to live in a world peopled by their

equals where they could find happiness, contentment, and security.

The adoption of a policy for dealing with mental deficiency in New York, would involve the expenditure ultimately of many millions of dollars and the enactment of laws which would affect the liberty and happiness of many thousands of citizens of the State. Such a policy was urgently needed, and no time should be lost in obtaining the data necessary for its formulation. The committee recommended, therefore, that the society do everything in its power to have a commission appointed which would include in its membership psychiatrists, teachers, lawyers, social workers, and men of public affairs, and to secure for such a commission an appropriation sufficient to enable it to make a thorough investigation and report.

Dr. STEWART PATTON, of Princeton, N. J., believed that much of the success of such a bill would depend upon its appealing to the imagination of the people, and, therefore, this report should be successful. He saw far ahead and far deeper than the problem of the mental defective. There was the biological problem involved, and they should approach the individual at the level where he belonged. They should endeavor to take hold of the popular mind. Recently, in speaking on the subject of economy at Princeton, Doctor Lowell, of Harvard College, had said that the students brought up on serious charges for offences, were as a rule above the average age of those in their classes. This was a startling statement. One or two years ago he had made a study of those students who had difficulty in adjustment, and what he had learned was startling beyond measure. Nearly all forms of psychosis were represented in these students. He wished to emphasize the importance of the biological problem involved.

Dr. SMITH ELY JELIFFE thought that the program sketched by the committee was very attractive, but suggested that it would be worth while to scrutinize the terms used with reference to the future. It was well known that the terms, insane and insanity, had grown to be very unfortunate ones. They carried with them the medieval idea of a stigma of some kind. It would be a move in the right direction to get away from these terms and to adopt such expressions as mental hospitals, mental disorders, mental health, mental hygiene, which were more than justifying themselves. The words, insane and insanity, would probably flounder about in the cumbersome machinery of the law for several more centuries before it would be seen that they expressed legal relationships and were not useful concepts in psychiatry. Hence the word "defective" should be viewed in the light of its probable evolution and great care should be exercised that in the outline of so excellent a plan as had been presented, the progress of the work should not be retarded by inept and cumbersome terminology. It was his opinion that it was highly desirable that all such movements should be affiliated with the central health powers. It was a sign of civilization in a community, that its mental health should be recognized as a valuable asset and that a State board of health affiliation was absolutely necessary. Health, hygiene, prophylaxis, were the watchwords, and the degree of intelligence

of a community stood in direct relationship to its recognition of the importance of the mental health of its members.

Dr. WILLIAM MABON agreed with Doctor Patton and also believed that the public mind recognized the term mental defective, and it must be used when they approached the Governor. They must at present use the term mental defective; after getting what they wished, the name could be changed.

Dr. HENRY R. STEDMAN, of Boston, asked if the mental defectives in the State had been enumerated. He presumed they would be added to the committee's statement, as the large number which would appear offered a strong argument. In Massachusetts they had a somewhat similar problem with which to contend. Although they had two good institutions for the feeble minded in the eastern part of the State, there was a movement on foot to have another in the western part. In estimating the number of mental defectives in the State of Massachusetts, a special medical agent was employed, who made inquiries in all directions, in institutions, of overseers of the poor, schools, etc. Simply the number of defectives was inquired into, and little or no attempt was made to obtain the life history of the patients. The type of defect, he believed, was noted in many cases. Of course, the actual number of defectives could only be roughly approximated in this way.

Doctor MABON's figures were only approximate in this State. There were about 20,000 people in need of institutional care. There were in the institutions of the State 35,000 insane patients.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Physiological Principles in Treatment. By W. LANGDON BROWN, M. A., M. D., Cantab., F. R. C. P., Assistant Physician to St. Bartholomew's Hospital and Physician to the Metropolitan Hospital, etc. Third Edition. New York: William Wood & Co., 1914. Pp. vii-408. (Price, \$2.25.)

We had the opportunity of criticizing the first edition of this book. At that time it was conspicuously lacking in data on that most important domain so recently elaborated, the ductless glands. This subject has now become systematized by Sajous, into a science in itself which he entitles hemadenology. The subject has grown so enormously, both in interest and by contributions of research workers, that it is difficult to reduce the physiological principles capable of being used in treatment, into one small book. In this volume the subject is treated under caption *The Principles of Organotherapy* and in only forty-two pages, obviously wholly inadequate space. The citations of the author are few, and references seem to be chiefly to English writers, although there are a few Americans. The author also adds some brief references in Chapter xiv to vitamins and calcium salts and the also enlarging subject of the metallic salts, and the parts they play in the physiology and pathology of metabolism.

The title of the book is an excellent and comprehensive one, and it is to be hoped that the author will, in subsequent editions, fulfill the promise which this title makes. As far as it goes, there are some excellent hints to be found here and there, explanations, suggestions, which will prove helpful to any one who realizes the exceedingly great importance of mastering the newer advances in physiology as constant aids in clinical procedures.

Die tierischen Parasiten des Menschen. Die von Ihnen hervorgerufenen Erkrankungen und ihre Heilung. Bearbeitet von Dr. MAX BRAUN, O. O. Professor der Zoologie und Vergl. Anatomie, Direktor des Zoologisch. Museums der Universität Königsberg I. Pr., Geh. Regierungsrat und Dr. OTTO SEIFERT, A. O. Professor für Rhino-Laryngologie, Vorstand der Poliklinik für Nasen- und Kehlkopfkrankheiten der Universität Würzburg. I. Teil: Naturgeschichte der tierischen Parasiten des Menschen von Dr. MAX BRAUN. Mit 407 Abbildungen im Text. Fünfte, Vermehrte und Verbesserte Auflage. Würzburg: Verlag von Curt Kabitzsch, 1915. Pp. x-559.

This admirable volume on animal parasitology is recommended for its careful and painstaking compilation for the purpose of study or reference. It contains a complete modern classification of the animal parasites, with short, concise description of each order and subclass embodied in the arranged classification. A praiseworthy fact is that the findings and opinions of all the workers in this field are included in the text. The section on protozoa is full of recent knowledge on the subject, including experimental data. We take pleasure in emphasizing the fact that a more complete volume could hardly be imagined, and we hope for an early translation into English.

The Principles and Practice of Tooth Extraction and Local Anesthesia of the Maxilla. By WILLIAM J. LEDERER, D. D. S., Dental Consultant to the German Hospital in the City of New York. Illustrated with 120 Textual Figures and 8 Figures on 4 Plates. New York: The Rebman Company, 1915. Pp. vi-262.

In a readable and interesting style, the author calls attention to the relation of dental foci of infection to systemic disturbances. He points out the principles of surgery which should be observed in the extraction of teeth and other dental or oral operations. The necessity for surgical cleanliness and the methods required to secure it in the field of the dentist are stated in detail. For the dentist, valuable suggestions are made for physical diagnosis. Chapters on the indications for teeth extraction; instruments, drugs, and dressings; classification of cases for tooth extraction; and the technic of the extraction of normally placed teeth and roots, impacted and unerupted teeth, are clearly written and well illustrated. Post-operative treatment, and treatment of complications, and the technic of the author are admirably set forth.

The second half of the book takes up local anesthesia and solutions. The technic and the preparation of the solutions and syringes are explained in a systematic and exact manner. The history, value, and efficiency of cocaine and novocaine are compared. Chapters on infiltration anesthesia, anatomy of the jaws, technic of conductive anesthesia, indications and contraindications, for local anesthesia, useful formulas, and prescriptions.

The book is convenient in size, well printed, excellently and amply illustrated with original drawings and photographs. For the general practitioner it indicates the care and exactitude with which oral operations may be and are done. It has a value for the country doctor, who in emergencies may be called upon to extract teeth. It fills the want long felt by the dentist for a systematic presentation of the subject upon which the author has so well written.

America's Pressing Mortality Problem. Extraordinary Increase in the Death Rate From Organic Disease of the Heart and Other Hard Worked Organs, as Indicated by the Mortality Records. By E. E. RITTENHOUSE, President Life Extension Institute, Inc. Copyrighted by the Life Extension Institute, Inc., 1915. Pp. 22.

One is inclined to remark that it is too bad that this pamphlet is so brief on account of the valuable matter which it contains. But on second consideration its brevity strongly recommends it, for many will read a short discussion who shrink from reading a long one, and the aim of this short paper is to spread its message widely among both physicians and laymen. It is to be hoped that it will have the widest publicity, for it teaches us a much needed lesson in possible life conservation and demonstrated life waste. Rittenhouse presents evidence in the most concise and convincing form to show that during the past decades there has been a rapid and continued increase in the mortality from affections of the heart and circulatory system, including the kidneys. He shows that parallel

with the increase in this country there has been a decrease in the death rate from the same classes of conditions in many of the European countries. From these facts he sounds a note of serious warning which it behooves everyone to heed, particularly the medical practitioner who is in the most favorable position to spread the information which may lead to changed modes of life with the ensuing avoidance of the conditions. Rittenhouse lays the blame for this increase in the degenerative diseases at the door of our recent rapidly increasing prosperity with its sequences of physical ease, luxury, overindulgence in unsuitable foods and drink, and other more serious vices. It takes one but a few minutes to read and digest the information given by Rittenhouse, and they should be among the most profitable few minutes that one could imagine, both for the physician and for the intelligent layman.

Studies in Röntgen Ray Diagnosis. With Especial Reference to the Gastrointestinal Tract. By A. C. CHRISTIE, Captain, Medical Corps. Washington: Government Printing Office, 1915. Pp. 35.

The method of x ray examination of the esophagus, stomach, and intestines is carefully considered, and a classification of the various types of stomach, based on their muscular tone, is given in this report. It shows how the two different varieties of gastric ulcer which are recognized by the x rays, the penetrating ulcer with a deep crater, and the perforating ulcer with cavity formation, are differentiated, and emphasizes the importance of other corroborative, though not diagnostic signs of ulceration, such as the incisura, the six hour rest, the hourglass stomach, and the localized tender point on pressure. How the x ray is of value in the study of the following conditions of the small and large intestine, is described: Adhesions of the first part of the duodenum, stasis in the ileum, Lane's kink, incompetence of the ileocecal valve, mobility of the cecum (the degree of mobility being determined by palpation, while the screen examination is being made), spastic constipation, and new growths. The larger part of the bulletin is devoted to case reports and to x ray photographs illustrating the text.

Interclinical Notes.

Dr. Robert T. Morris was sponsor for the following sentence last week, save for our italics: "It leaves the larger number of patients with psychoses to be treated after the manner of the doctor *whom* it is said always gave a patient fits if he did not know what the right diagnosis was, because he knew how to cure fits." We do not believe that our distinguished medical essayist wrote it that way; it must have been the proofreader's fault.

* * *

The *Survey* for May 22d compliments Missouri for her sudden arrival in the front rank of States which are fighting disease. The legislature of that State has passed five bills which ought to have a noticeable effect on the death rate. There is an interesting discussion of the new book by Goring on the English convict, with his theories of the influence of heredity rather than environment in producing criminals—theories widely differing from our own, as our readers are aware. Goring's ignoring of environment is positively amazing.

* * *

Swat the Fly is a one act play of great ingenuity, by Eleanor Gates, author of *The Poor Little Rich Girl*, which it resembles, although slightly, in construction. So cleverly is the action managed that an attempt to summarize the plot would take almost as much space as to reproduce the text. Beside affording entertainment, the play is a notable contribution to the literature of physiological experimentation, of which it offers a noble defense without being likely to ruffle the feathers of the pious crusaders against that fundamental principle of modern therapeutics. It would be well for the physician in small communities to foster the production of this playlet by Sunday schools or children's dramatic associations; it will entertain in a legitimate way as well as afford valuable instruction. The book is published by The Arrow Publishing Company, 116 West Fifty-ninth Street, New York, at twenty-five cents.

Extract from a Letter from Paris, in the *May Century*, and Heine on the English, will give a severe shock to many readers. The Right of a Child to Two Parents, by Mary Ware Dennett, is a thoughtful and informing essay. The anonymous serial, *Me*, is bright and amusing in this installment. There are seven short poems and a multitude of exquisite illustrations.

* * *

We get this note at third hand apparently, through the *Prescriber* for March, 1915. It appears that F. E. Walker, in a recent issue of *Guy's Hospital Gazette*, drew attention to the following headline in the *Observer* for January 17th:

CARDINAL MERCIER'S CONFINEMENT.

GERMAN PRESSURE ON HIS EMINENCE.

Mr. Walker asks if pressure on that part is good treatment, having regard to the reported German tendency to overdo things.

* * *

Curing the Disease but Killing the Patient, by Allan L. Benson, in the *May Pearson's Magazine*, has an attractively professional sound, and, although the title is figurative, we advise every physician to read the article. There has never been, to our mind, a simpler and more logical explanation of our present business troubles. George Creel's account of what employers think of their employees, is a curious indictment and confirms what is not sufficiently obvious to the average thinker, that a wealthy man is not necessarily an intelligent nor a well read one. The physician who ponders over this article may realize how little his charitable work is appreciated by those who assist it with money only.

* * *

A thoroughly amusing and not unprofitable story is The Woman Who Never Came Back, by W. E. Priestley in the *Wide World Magazine* for May. No-ha-de-lan, the heroine, is witch doctor to a certain tribe of Alaskan Indians and makes an interesting psychological study. She resembles in many ways the charlatans who have visited us from European countries, believing apparently in her supernatural powers, but never hesitating to use fraud when these fail her. She undertakes all kinds of conjuring as well as treating the sick, and the trained observer of her costume as shown in one of the illustrations, will note what looks very like the *servante* of one of our own magicians.

* * *

Amélie Rives states in *Shadows of Flames* in the *May Cosmopolitan*, "Marco is even greater as a composer than as a musician." This sounds much like saying, Marco is even greater as a painter than as an artist.

* * *

Dr. Hugh Gillespie, the hero of the opening story in the April *Strand*—The Jewel Dance, by Violet M. Methley—is ignorant of the ways of the world to a degree unusual even in a young physician. We tremble for his future.

Meetings of Local Medical Societies.

MONDAY, May 31st.—Poughkeepsie Academy of Medicine.

TUESDAY, June 1st.—New York Academy of Medicine (Section in Dermatology); New York Neurological Society; Clinical Society of the West Side German Dispensary and School for Clinical Medicine; Medical Society of the County of Yates; Medical Society of the County of Tioga; Medical Society of the County of Orleans.

WEDNESDAY, June 2d.—Society of Alumni of Bellevue Hospital; Harlem Medical Association (annual); Bronx Medical Association; Elmira Academy of Medicine; County of Rockland Medical Society; Long Island Society of Anesthetists.

THURSDAY, June 3d.—New York Academy of Medicine (stated meeting); Brooklyn Surgical Society; Practitioners' Club, Buffalo (annual); Geneva Medical Society; Glens Falls Medical and Surgical Society.

FRIDAY, June 4th.—New York Academy of Medicine (Section in Surgery); New Utrecht Medical Society; Manhattan Dermatological Society; Corning Medical Association.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending May 19, 1915:

Bahrenburg, L. P. H., Surgeon. Directed to proceed to various points in Texas relative to physical examination for the United States Coast Guard. **Banks**, C. E., Senior Surgeon. Granted five days' leave of absence from May 17, 1915. **Christian**, S. L., Assistant Surgeon. Directed to report to Assistant Surgeon K. E. Miller at Fredonia, Kansas, for duty in the investigation of rural sanitation in Wilson County, Kansas. **De Saussure**, R. L., Assistant Surgeon. Directed to report to Surgeon L. L. Lumsden at Jasper, Ala., for duty in investigations of rural sanitation in Walker County, Ala. **Foster**, M. H., Surgeon. Granted four days' leave of absence on account of sickness from May 2, 1915. **Fox**, Carroll, Surgeon. Granted seven days' leave of absence from May 12, 1915. **Frost**, W. H., Passed Assistant Surgeon. Directed to proceed to Port Huron, Mich., on May 17th, 1915, to deliver an address in connection with the health campaign being conducted in that city. **Harrington**, F. E., Assistant Epidemiologist. Detailed to attend the annual meeting of the Southeastern Sanitary Association at Asheville, N. C., May 25-26, 1915. **Hasseltine**, H. E., Passed Assistant Surgeon. Directed to represent the service at the Conference of State and Provincial Health Authorities of North America, at Washington, D. C., May 14, 1915. **Holt**, John M., Surgeon. Appointed by the Secretary of State as a delegate of the government to the Ninth International Conference of the World's Purity Federation, to be held in San Francisco in July next. **Kalloch**, P. C., Senior Surgeon. Granted two weeks' additional leave of absence from May 22, 1915. **Kerr**, J. W., Assistant Surgeon General. Detailed to attend meetings of the Pan-American Medical Congress, and the American Medical Association, to be held in San Francisco, Cal., June 18-25, 1915, and to represent the service in the house of delegates of the latter association; also to attend the sessions of the American School Hygiene Association, June 25-26, in that city. **Kesl**, George M., Acting Assistant Surgeon. Granted one day's leave of absence, May 16, 1915. **Lloyd**, B. J., Surgeon. Directed to represent the service at the conference of the National Association for the Study and Prevention of Tuberculosis at Seattle, Washington, June 14-16, 1915. **Michel**, Carl, Assistant Surgeon. Directed to proceed to New London, Conn., and report to the Superintendent of the Coast Guard Academy, for duty on the Coast Guard Cutter *Itasca*, for the cadets' practice cruise. **Phelps**, E. B., Professor. Directed to proceed to Cincinnati, Ohio, for conference in regard to proposed studies of industrial wastes disposal. **Preble**, Paul, Passed Assistant Surgeon. Granted three days' leave of absence from May 16, 1915, under paragraph 195, Service Regulations. **Robertson**, H. McG., Surgeon. Directed to take charge of the work of the service at Philadelphia during the absence of Senior Surgeon Fairfax Irwin on leave. **Warren**, B. S., Surgeon. Detailed to represent the service at the National Conference of Charities and Corrections at Baltimore, Md., May 12-19, 1915. **Young**, G. B., Surgeon. Granted two days' leave of absence from May 17, 1915, under paragraph 193, Service Regulations.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending May 22, 1915:

Dale, Harry L., Captain, Medical Corps. Relieved from duty at Fort Douglass, Arizona, July 10, 1915, and ordered then to proceed to Fort William H. Seward, Alaska, for duty, relieving Captain John S. Lambie, Jr., who upon being thus relieved will proceed to the United States and report to the adjutant general of the army for further orders and duty. **Marshall**, Mark, First Lieutenant, Medical Reserve Corps. Resigned his commission in the Medical Reserve Corps, and same was accepted by the President, effective May 17, 1915.

Michie, H. C., Jr., Captain, Medical Corps. Relieved from duty at Fort Missoula, Montana, and further temporary duty with Field Hospital No. 3, Galveston, Texas, to take effect July 10, 1915, and ordered then to proceed to Fort St. Michael, Alaska, relieving Captain Thomas L. Ferenbaugh, Medical Corps, who upon being thus relieved will proceed to the United States and report to the adjutant general of the army for further orders. **Mount**, James R., Captain, Medical Corps. Relieved from duty in the Hawaiian Department, to take effect at such time as will enable him to take the transport to sail from Manila, September 15, 1915, for the United States, reporting on arrival to the adjutant general of the army for orders. **Russell**, Frederick F., Major, Medical Corps. Relieved from his present duties, effective May 24th, and will then report to the governor of the Panama Canal for assignment to duty. **Weston**, Henry R., First Lieutenant, Medical Reserve Corps. Ordered to active duty, and will proceed to Fort Terry, New York, for duty.

Births, Marriages, and Deaths.

Born.

Fogg.—In Biddeford, Me., on Friday, May 14th, to Dr. and Mrs. John S. Fogg, a son.

Died.

Adams.—In Belfast, Me., on Saturday, May 1st, Dr. Forrest B. L. Adams, aged forty-six years. **Armstrong**.—In Kane, Pa., on Thursday, May 13th, Dr. William J. Armstrong, aged sixty-two years. **Bailey**.—In Hartford, Conn., on Monday, May 10th, Dr. George C. Bailey, aged forty-nine years. **Baker**.—In North Adams, Mass., on Saturday, May 8th, Dr. F. Eugene Baker, aged forty-six years. **Baltes**.—In Oswego, N. Y., on Tuesday, May 11th, Dr. Eugene William Baltes, aged forty-two years. **Barber**.—In Rochester, Minn., on Tuesday, May 18th, Dr. Amos W. Barber, aged fifty-four years. **Boesger**.—In Cleveland, Ohio, on Saturday, May 8th, Dr. Max A. Boesger, aged forty-eight years. **Cohn**.—In New York, on Tuesday, May 18th, Dr. Sigismund Cohn, aged fifty-six years. **Coolidge**.—In New York, on Friday, May 14th, Dr. Frederick Shurtleff Coolidge, of Pittsfield, Mass., aged forty-nine years. **Fish**.—In Mosinee, Wis., on Tuesday, May 11th, Dr. Edward C. Fish, aged fifty-seven years. **Fritz**.—In Quincy, Pa., on Wednesday, May 12th, Dr. Horace Morgan Fritz, aged sixty years. **Fuller**.—In Hastings, Mich., on Wednesday, May 12th, Dr. Daniel E. Fuller, aged sixty years. **Goldin**.—In Draketown, Ga., on Thursday, May 6th, Dr. William F. Goldin. **Harrison**.—In East Creek, N. Y., on Thursday, May 13th, Dr. Herbert A. Harrison, aged forty-five years. **Hibbert**.—In Chicago, on Saturday, May 15th, Dr. George A. Hibbert, aged forty-nine years. **Hood**.—In Nepton, Ky., on Wednesday, May 12th, Dr. John S. Hood, aged seventy-five years. **Lempe**.—In Albany, N. Y., on Monday, May 17th, Dr. George G. Lempe, aged fifty years. **Lewis**.—In Hornell, N. Y., on Wednesday, May 12th, Dr. George W. T. Lewis, aged fifty-one years. **McLoughlin**.—In Jersey City, N. J., on Wednesday, May 12th, Dr. Thomas J. McLoughlin, aged seventy years. **McMasters**.—In Valparaiso, Ind., on Saturday, May 8th, Dr. James M. McMasters, aged seventy-four years. **Roberts**.—In Bridgeport, Conn., on Tuesday, May 11th, Dr. Albert J. Roberts, aged forty-one years. **Roberts**.—In Cordele, Ga., on Saturday, May 8th, Dr. Henry B. Roberts, aged sixty-three years. **Slater**.—In Aurora, Ill., on Monday, May 10th, Dr. Catherine B. Slater, aged seventy-three years. **Smith**.—In Westbrook, Me., on Friday, May 7th, Dr. Thomas P. Smith, aged sixty-two years. **Thompson**.—In Bluffton, Ga., on Monday, May 10th, Dr. Patrick H. Thompson, aged sixty-seven years. **Townsend**.—In Glensboro, Ky., on Tuesday, May 11th, Dr. Ollie L. Townsend, aged fifty-five years. **Townsend**.—In Columbus, Ohio, on Saturday, May 15th, Dr. Stephen B. Townsend, aged sixty-seven years. **Tucker**.—In Berryville, Va., on Friday, May 14th, Dr. Alfred Bland Tucker, aged fifty-eight years. **West**.—In Leesburg, Va., on Tuesday, May 11th, Dr. Nelson West, aged eighty-three years.

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GALLSTONES.

By BEVERLEY ROBINSON, M. D.,
New York.

In our practice among people past middle life, we are constantly finding cases which give premonitory symptoms of gallstones. Frequently, these are merely so called dyspeptic symptoms, which are not characteristic. Again, they give evidence clearly of what threatens, and if properly heeded, will probably prevent many later troubles. Among these we should name two especially: First, the nausea and vomiting after a meal in which some food, usually, rich in fat, has occasioned the upset; second, during, or immediately after a meal, particularly dinner, there is a sudden call to the closet, and a diarrhetic attack occurs. With both these manifestations there is often much chilliness, or a feeling of faintness. Moynihan (1) and Chauffard, notably, have insisted upon these and other symptoms, usually assigned to the stomach, which are undoubtedly caused by the presence of gallstones.

To the surgeon, Moynihan, it is very important to appreciate the diagnostic significance of the nausea and vomiting, because it prevents not a little wrong or useless medication. Further, it indicates the need of active interference very soon by a surgeon. An operation will be, according to him, the best way to relieve or cure the patient. All attempts at medication when gallstones are really present, are illusory and ultimately fail to avert wretched sequels. It may be that only invalidism ultimately results. What is possible, and indeed often takes place, is the development of complications which are serious and urgently require surgical doing, either immediately or at the first proper time.

How should such patients be managed with greatest advantage to themselves, when their advisers do not share Moynihan's radical views? This differs somewhat with the patient affected, mainly in view of his occupation and social position. If the patient is a man or woman of small means and unable to be absent from daily work; if, after several weeks of intelligent and careful treatment, as far as may be, the dyspeptic symptoms remain the same, or are aggravated, and one or more attacks of biliary colic supervene, it would seem injudicious to postpone an operation, provided that the services

of a skilled surgeon can be had, and hospital care may also be secured.

In the case of the well to do, it is different. Medical treatment continued, either at home or abroad at a spa, will not usually cure, but it will many times, as we know, make the annoying symptoms far less for weeks and months. In a similar way, it may prevent for a while the outbreak of another attack of biliary colic. This is also done by proper diet; a variety of flesh food, broiled, or roasted, may be enjoyed and most vegetables are permissible. But all fats should be interdicted, so far as possible. Alcoholic drinks must be forbidden. Sugar, in any form, must be limited. Frequent small meals are desirable, because in this way the duodenal papilla is made to open reflexly and the bile allowed to pass into the intestine. Laxatives are useful no doubt when indicated by even slight constipation, by increasing intestinal movements and thus promoting the flow of the bile. Without accurate explanation of why it is, it is believed by not a few clinicians that small, frequent doses of calomel are very useful, especially when there are acute symptoms of fever and marked local pain.

Daily exercise, moderate and in the open air, should be insisted upon. In this way, the bile will be maintained, so far as possible, in a healthy condition and the amount of cholesterin diminished; what is present will be held in solution and thus not form gallstones. We may aid this condition in many instances, by the use abundantly of water and also by Carlsbad water, mixed with hot water, in the morning on rising. During the time the Carlsbad water is slowly sipped, exercise in the house should be taken, by walking up and down the room, or floor—of course, this is a very poor substitute for the exercise taken at the springs. No doubt, the alkaline salt, sulphate of sodium, in Carlsbad water, as well as the hot liquid, help to liquefy the bile notably.

In all cases where there is even a suspicion of infection of the bile, by either the colon bacillus, or some other organism, as that of Eberth, moderate doses of salicylate of sodium, or hexamethylenamine, should be given regularly for some days. In this way, no doubt, the bile is affected favorably, and even when cholecystitis has begun, as shown by local pain, or tenderness, independently of acute biliary colic, they lessen the inflammatory condition.

When attacks of intermittent fever with chills occur, in addition, similar treatment, accompanied by warm applications, or hot stupes, is notably of

good effect. Usually indeed, unless the gallbladder has become infected in too advanced degree, or suppuration has occurred or the bile ducts have become involved an operation of imminence is prevented.

I may add that later experimental observations upon the origin of gallstones still support Naunyn's view of the infective causation of ordinary varieties and indicate that pure cholesterin stones may form in a sterile gallbladder. Gallstones are frequent among Germans with high proteid diet and infrequent among Japanese with carbohydrate diet. The formation of any kind may be largely offset by proper diet. (2)

If, despite our precautionary measures, there is an attack of biliary colic, very little avails usually, short of a hypodermic injection of morphine and atropine. I do not approve of the inhalation of chloroform, except in extreme cases of great pain, and only so far as to make the symptoms endurable until the injection becomes effective. Warm applications to the region of the gallbladder, hot baths, enemata, washing out the stomach, different remedies, such as ether, turpentine, belladonna by the stomach, have never in my experience, had any real value. I do not believe either, that different remedies said to promote the flow of the bile such as calomel, podophyllin, iridin, etc., have practically demonstrated their value. To many, the use of olive oil made an appeal during some time as having the power to dissolve gallstones, and for this reason it was given—at the present time it is not believed in. It is true, as has been shown by Harley and others, that gallstones may be rapidly disintegrated by contact with olive oil in a test tube. It is also probable that perfectly healthy bile has such an effect in a moderate degree.

But if we realize the improbability of any direct contact with biliary calculi when olive oil is taken by the mouth, it lessens our belief in its utility. Moreover, when calculi are present in the gallbladder, the walls of the gallbladder are already more or less diseased.

Of course, it must be understood that no medicinal treatment will effect an absolute cure of gallstones. It may soften them and diminish their size, possibly, in some instances, sufficiently for them to pass through the biliary canals and escape through the intestine. Yet we know in how few instances such stones have been found after the most careful examination of the stools. When we first discovered what we believed to be biliary stones, a later chemical examination proved that they were not, but simply the oil combined with mucus and salts. In considerable doubt as to the existence of gallstones, x ray examinations may occasionally fix the diagnosis. But this is only true where there is a lime coating to the stones, which enables the operator to get a satisfactory picture. In all instances of pure cholesterin stones, such a picture cannot be obtained. It has been lately shown, however, by a special technic for making Röntgen plates and new methods of interpretation, that gallstones may be detected more frequently than formerly (3). In such cases, Pfahler claims that adhesions between the gallbladder and the stomach, or duodenum, may be recognized by means

of the Röntgen rays. Admitting this, such recognition must be liable, as I believe, to much error of interpretation.

Nevertheless, if in view of the frequency of these adhesions, when there is disease of the gallbladder with gallstones, the pylorus and duodenum are retracted toward the liver, or the duodenum is stenosed or carried to the right wall of the abdomen, there would be good reason to affirm their presence (4).

While it is often a fact that gallstones are present when a patient has been treated for a stomach disease which did not exist, it is equally true that many conditions which have given symptoms of gallstones, have not been recognized until an exploratory incision revealed them. These notably, are adhesions around the gallbladder, or connecting it with the pyloric end of the stomach, also certain forms of appendicitis, cirrhosis of the liver, and ulcer of the stomach.

As to special symptoms, we know it is not infrequent to have hyperchlorhydria, which is dependent not upon stomach conditions, but upon those present in the gallbladder and bile ducts. Even the symptoms in general, indicating some stomachal disease, may be sadly misinterpreted. In connection with this subject I would cite from a very late and admirable article of Dr. John G. Clark, of Philadelphia (5), Doctor Clark writes: "When the upper abdominal symptoms are vague, the ratio of incidence is greatly in favor of the gallbladder as the seat of the trouble. In our cases the ratio is 100 to one. In doubtful cases the diagnosis should invariably be cholelithiasis, or cholecystitis."

We should therefore be on our guard as far as possible against such errors, and it is only the severest, most critical examination of the patient's history and symptoms, which will enable us to avoid not a few mistakes in diagnosis. In women, especially, who have been pregnant more than once, in patients who have had typhoid fever latterly, we should be more suspicious and careful. In men who eat, and drink freely; who take much beer, or any alcoholic stimulant; who also lead sedentary lives, and who have many cares and worries, if they are over forty or fifty years of age, we should ever be alive to the probabilities of the case. In many instances our diagnosis may be confirmed by an attack of jaundice of some duration, and also by the lack of bile in the stools, but such a condition, as we know, may often be wanting and later we have indisputable evidences of gallstones.

It is now admitted that death rarely occurs during an attack of biliary colic. It is also true that surgeons do not believe it to be good practice to operate during such an attack, unless it is imperatively required by grave complications, such as general infection or spreading peritonitis. On the other hand, whenever the attacks of biliary colic have been repeated, or the symptoms have become more continued and graver, an operation must not be too long delayed. Among the very fatal sequels which often follow too long delay in operating, we should note the development of cancer of the bladder or gallducts. Three such instances have been reported lately by Dr. James Tyson, of Philadelphia (6), and from them he deduces the importance

of early operation with a view to their prevention. I admit, therefore, the advisability of not waiting too long. On the other hand, I deplore all operations on the gallbladder done by incompetent hands. One thing is an operation performed by a Mayo with very few fatalities, and another is that of the ambitious young surgeon who is too ready to operate and as a result we have a fatal ending. Personally, even in very competent hands, I have seen a fatal result from hemorrhage after the operation and when, despite my own urging to operate for an impacted gallstone in the common duct, with intermittent fever, no stone was found at the autopsy. It was thought to have passed in the stools, but very careful examination of them did not reveal it. In another case, which I saw in consultation, the attending physician and myself agreed about the necessity of an operation, the consulting surgeon also agreed to do the operation and came prepared to perform it. At the time of the proposed operation, the patient seemed in such poor shape, it was advisedly delayed to a more opportune time. Unfortunately, the time never occurred, as the patient died suddenly within twenty-four hours.

In one other case, an operation was performed where gallstone impaction in the common duct had been affirmed. No gallstone was discovered and the gallbladder and ducts were apparently healthy. An obscure abdominal tumor was found, very deep seated. It was thought at the time ill advised to attempt its removal. The wound was closed and the patient made a good recovery. Later, in view of maintained good health by the patient, the intra-abdominal tumor was believed to be of inflammatory nature.

These and other cases in my experience, make me avoid so far as possible, obtaining even skilled and careful surgery. Mayo, in 4,000 operations, reports an average mortality of 2.75 per cent. In twenty-five New York State hospitals, there was a mortality of 8.3 per cent. (7). Presumably, the men who operated in the latter cases, were on an average, good surgeons. How then must it be with the tyro who undertakes these operations?

Why should patients be misunderstood, because they demur or delay until it is so late in the day that the operation has poor chances of success? One reason also of the lack of success is, not the need of skill on the part of the operator, but the poor judgment which permits him to operate when the chances are against a favorable result. Such was my own case where I urged operation at a wrong time.

To this, however, it may be answered that the risk of further delay in an imminent case, is as great as, or even greater than undertaking at the time what is known as a very hazardous operation. In just such cases the most careful balancing of arguments for and against operating is specially required. And here it is that individual judgment of the best sort is not invariably in accord. On the one hand we find W. J. Mayo, who would operate almost invariably so soon as gallstones are positively determined; on the other, Kerr, who operates only in two types of cases, those with "vital" indications, and those with "relative" indications. The latter are those where the symptoms are long

continued, or in which there are frequent attacks of biliary colic.

Among the remedies which have been within a few years mentioned favorably as to their action on the liver, perhaps even helping to dissolve biliary stones in the gallbladder or gallducts, are the bile acids, bile itself, boldine, chionanthin, and sodium succinate. Dujardin-Beaumetz has much faith in boldine, as had also other French writers. According to Mayer (8), we may produce latency in gallstones during long periods provided that we prevent stagnation of the bile and infection of it with microorganisms. Unless we accomplish this, it is useless to try to dissolve stones already formed, because they will reappear; also, it is useless to operate for the removal of them, unless imperatively required by grave complications. Mayer believes that the special utility of salicylic acid, but not of the salicylates, comes from its decreasing the amount of solids in the bile, rather than by augmenting the quantity. He ascribes, on the other hand, much of the utility of Carlsbad water to its warmth and not to its mineral constituents, and believes the same benefit might be derived from drinking hot water on an empty stomach.

When possible, however, nothing in the way of preventive or curative medical treatment, meets with such successful results as may be had at Vichy, Carlsbad, or in my judgment, at Homburg. In certain cases I favor Carlsbad, particularly those in which the diagnosis is unquestioned and there is more or less jaundice. In instances where stomach digestion is notably affected, and there is no jaundice, although the diagnosis may be affirmed, I prefer to make a trial of Vichy, making use of the source Celestins.

To those who are merely threatened with gallstones by reason of their habits and corpulency, I greatly prefer the Elizabethan spring at Homburg, which nearly resembles in composition our Congress spring at Saratoga, N. Y., combined with the use of pine needle oil baths. At any spa it is essential to be in the hands of a physician who is above all endowed with common sense and will be very judicious as to treatment and not exaggerate its importance and employ it excessively. I have seen much harm done by too enthusiastic practitioners, and patients have been injured rather than benefited, by too much or too long drinking of the water at the spa and also by too rigorous dieting.

Nothing in the way of medical treatment is sovereign in any case, and the value of the personal equation must always be carefully considered. Carlsbad Sprudel water and Vichy Celestins are both capable of doing much harm, as well as being of great service. It depends largely as to the probable outcome of treatment upon the mental poise and make up of the medical adviser, who has been selected, and his appreciation of just what is needed in the treatment of a particular case.

I shall not consider those patients of whom there are not a few, who were misdirected by their medical adviser at home and who in the judgment of the spa physician did not require the special treatment there used, and would only suffer from any at all, except the very mildest. I have more than once known of just such cases.

In cases which evidently require medical treatment at home, either precautionary, or curative, chionanthin, the bile salts in one third grain doses, combined with succinate of sodium, five grains, may be taken three times daily, after meals, as suggested by Dr. R. J. Smith (9). In the intervals of attacks of cholecystitis, with, or without gallstones, Doctor Riesman usually prescribes the following in capsule, three times daily: Sodium salicylate, sodium succinate, oxgall, of each two and one half grains (10).

There are two points which should again be emphasized; first, the fact that even when gallstones are present, they may not occasion biliary colic, if the bile is kept in good condition through treatment and cholecystitis is thus prevented. To accomplish it and as an adjunct to the treatment above referred to, and where intestinal dyspepsia, or fermentation is an evident factor, we should give a fair trial to the use of the Bulgarian bacillus (11). It is at times, of considerable service, as I have remarked more than once. In instances where it is of little value, it has the advantage of being innocuous.

The second fact to be reaffirmed is that gallstones do not recur, or at least very infrequently, in the judgment of men of the largest experience. What is true, is that when the symptoms again point to their presence, it is because at the operation when done, some stones have not been detected and still remained hidden in the bile ducts. Or what has also occurred, was the development of fresh stones about undissolved sutures which have been left by the surgeon in the gallbladder, after the operation was completed.

The latest expression of opinion in this matter I find in a paper on the ultimate results obtained by operations for gallstones by Dr. John G. Clark, of Philadelphia (11), who affirms that "the weight of evidence most emphatically favors the early removal of gallstones. The mortality will be very small, the proportion of cures very large, and the hazard of a return of the patient to the hospital for a second operation very slight."

Despite this statement, and even according to Doctor Clark's showing, admirable though it be, many physicians will be disposed to temporize and trust for a considerable time to medical treatment. I rather believe the reason of the delay is mainly because the internist feels that the underlying efficient causes which produced the gallstones originally, may also cause some other disease which might demand surgical interference, unless they are neutralized as far as possible.

This is not, moreover, mere possibility. On the contrary, I have in mind the cases first operated in for gallstones and subsequently for appendicitis, ulcer of the stomach, or some other disorder, of almost similar etiology, as the gallstones. Beside these considerations, there are others. Take for example the cases of operation for stone in the common duct. Not a few of these cases have been fatal because of primary, or subsequent hemorrhage, and also because of cholemia. It might be stated, and it has been, that if the patient had been operated on sooner, these fatalities would not have occurred. That is possible, but it is also true that human na-

ture must always be allowed for, and with many people even today, a natural dread of a severe surgical operation exists, and for more than one reason and despite favorable statistics. Individuals reason from their own personal standpoint and not from the viewpoint of hospital or private statistics. Every case is as it were, a law to itself. And so it is, as Dr. Louis Frank (12) very justly writes: "Alongside of operative skill and dexterity must be placed surgical judgment, difficult and sometimes impossible of acquirement, something which cannot be taught, which largely depends upon human temperament, and is, in a measure, inherent in the individual."

Even admitting that the surgeon expert manually has also most excellent judgment, he is liable, like all human beings, to error. Besides, surgery although very far advanced and wonderful in its accomplishments, is not yet an exact science, and despite all human foresight there may be an unfortunate outcome to an operation. In mere matter of detail, like the soiling of the hand, dressing, or instrument, a mishap may occur, and any one of these may be fraught with disastrous consequences.

Again how often do we read: The operation succeeded, and the patient was apparently doing very well, but suddenly heart failure, so called, occurred and he died. Such a case has just been reported to me; that of a near relative, operated on for gallstones, did well, but alas! died suddenly from heart failure. And so it is that the broad appreciations which come through exact and many sided medical training and experience, are not infrequently all important as guides or counselors of surgery.

There is little doubt that at present there is much unnecessary surgery, and the time has come for physicians to take up again the too readily relinquished role of advising when an operation is justified by the indications and probable results. When men of the highest calibre and skill, like John B. Deaver, of Philadelphia, and Charles Mayo, of Rochester, Minn., raise their voices in this direction, as they did at the last meeting of the American Medical Association, it is time to cry a halt. Dr. John M. T. Finney also deprecates the tendency to operate. He writes: "There is far too great a tendency to operate nowadays, and the average doctor resorts to this shorter route, when perhaps a more careful diagnosis would show some other course to be preferable. Many operators—and I use the word advisedly—rush into operations with no clear idea whatever of the nature of the disease which they are endeavoring to combat, and for this reason many operations are needlessly performed" (13).

I note with great satisfaction, as does *American Medicine* (14), the drift toward saner thinking and doing. The return should be to the old position when the physician took charge of the patient throughout the whole course of the disease and invoked the surgeon's mechanical talent only on those occasions when it was evidently required.

The journal mentioned asks pertinently, "Who is the proper judge as to the necessity for an operation, the man who gets a big fee for doing it or he who gets a little fee for advising it?" Further, it

writes: "The fee should go to the physician who will pay the surgeon for his services."

To carry this judgment to its final, logical conclusion, and as I would have it for the greater welfare of all patients, this role of family physician should be extended to every case in which the services of a specialist are required.

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42 WEST THIRTY-SEVENTH STREET.

THE INTRAVENOUS USE OF ANTISEPTICS IN GONORRHEA.

Some General Observations on Intravenous Therapy. An Introductory Article.

BY WILLIAM F. BERNART, M. D.
Chicago.

A review of literature on the treatment of acute gonorrhea permits of the deduction, that except for a general refinement in technic and the addition of more acceptable drugs, little advancement has been made. The large number of drugs recommended as applicable plainly show that the ideal treatment is yet to be discovered. Even under the local application of the more modern preparations, fortified by the use of biological products and specially recommended drugs for oral administration, the results of treatment vary so markedly as to justify these statements. As the treatment of gonorrhea has always followed certain stereotyped lines, the lack of better results may be due to the fact that no decided tangent has ever been attempted from the established circular routine. When we consider the ease with which the gonococcus is destroyed in cultures outside of the human body, compared to most other organisms, and that its culture media must be "just right" for its growth, it would appear to be a simple matter to find some drug which would assist in the rapid destruction of so vulnerable a germ. So far, I possibly have not found the chemical substance which will answer the purpose most effectively, but I have proved without a doubt that the intravenous use of acceptable antiseptics, combined with a mild local application, will reduce the time of treatment and the percentage of complications.

Every attribute of the gonococcus, everything in the pathology of gonorrhea, invites the use of intravenous medication. Regarding the germ, it is hard to cultivate on artificial media, animals are immune to it and placed in subcutaneous tissues it dies quickly; these three factors alone argue in favor of a weak resistance. As the germ reproduces itself every ten minutes, a drug injected into the circulation would unquestionably produce a germicidal state for a sufficient length of time to cover several cycles of multiplication, and if there is a period during the growth of this germ when its resistance to outside influences is less than at other times, the

medicine or its by product is certain of this advantage.

The anatomy of the urethra and the pathology of gonorrhea also indicate the use of intravenous therapy. Anatomically the channel is a collapsible tube surrounded by a web of bloodvessels, and lined in its front part (*fossa navicularis*) by squamous, and in its spongy part by columnar epithelium. The urethral glands embrace two groups, those within the mucous membrane and those within the submucous tissues. The intramucous glands are simple in structure, consisting usually of a single alveolus, less frequently two or three, lined with cylindrical epithelium and occurring in all parts of the urethra. The submucous glands, although small, are larger than the intramucous and less widely distributed; they are better developed in the upper wall of the spongy portion. Their ducts are extended several mm. backward, more or less parallel to the channel, and divide into two or more slightly expanded terminal tubules which are lined with cylindrical epithelium. The deeper parts of the mucous membrane contain a rich venous plexus, more marked about the glands.

Within thirty-six hours after admission into the channel, the gonococcus penetrates into the epithelial layers of the affected mucosa and lies partly between and partly within the epithelial cells and in leucocytes. By peripheral extension the cocci work their way backward into the urethra and into the deeper tissues. The infiltration is more marked in the area of cylindrical epithelium, while in the region covered by the squamous type the cocci lie more superficially. Only the upper layers of the underlying connective tissues become infiltrated. The presence of the germ causes inflammation, both mechanical and chemical, which has the character of purulent catarrh and is associated with a cellular infiltration of the tissues of the mucosa and with epithelial desquamation. The invasion is more marked about the crypts and glands, which become packed with pus and cocci. In acute cases the germ is abundantly found, from the surface of the mucous membrane to the underlying connective tissue. It has been many times demonstrated in the blood, when conditions being favorable, it produces extragenital involvements. The disease cannot be cured until all gonococci are eliminated from the deeper tissues and glands; nature assists in this by recruiting to the parts a defensive host of leucocytes and the formation of substances detrimental to the resistance of the germs, while medication so far has fought the invasion from the other side. The rich plexus of bloodvessels in the deep mucosa and the selection of this site by the gonococcus certainly speak in favor of intravenous medication plus a mild local treatment.

Having chosen a subject which did not permit of experiments on animals, because of their immunity to gonorrhea, all work had to be done on man. The first nine of fourteen years' work were unproductive of results, because there was nothing in medical literature to furnish a working nucleus; numerous drugs had to be selected and their applicability for intravenous use demonstrated; those qualified to be thrown into the circulation required observation as to their possession of any gonococidal ac-

tion; the migratory character of clinical cases nullified much of the work done; and, above all, the drugs used were given in insufficient quantities. During the tenth and eleventh years, certain of the former work was gone over and amended. These two years abrogated the fear of giving larger doses and assisted materially in bringing the subject out of its previous chaos.

As indicated in the title, this is but an introductory article on a new subject. The results of more advanced work done during the last three years will have to await future publication. While numerous drugs of known antiseptic qualities can be thrown into the circulation, it was found that many of them could not be given in sufficient quantities to effect results without a very disagreeable systemic reaction. As more complete observations on various drugs are being tabulated, I can at this writing give the findings on only two as to their effect on gonorrhea. While the gonococcal effect of these drugs is not as marked in a way, as has been obtained from other chemicals, they are of interest because they were the first to prove that gonorrheal inflammations can be partially controlled by intravenous medication, thus giving a ray of encouragement, and also that large quantities of medicine can be thrown into the circulation without producing evil results.

As a standard of time and complications had to be arranged, I selected at random from my records, 100 cases of gonorrhea which had been treated under the accepted and modern methods. These 100 cases showed seventeen per cent. becoming complicated under a carefully directed treatment. Of the total number, fifty of the most favorable as to results obtained were selected and the average number of days for a cure, estimated, which was thirty days. As I have no reason but to believe this to be an exceedingly favorable standard, I have adopted it in all my work. This standard does not include cases in which an abortive treatment was successfully tried.

The two drugs referred to as used intravenously were borophenylic acid and sodium benzoate. The borophenylic acid was used in an aqueous solution of one to thirty and the sodium benzoate in one to two, or weaker if desired. Both give a slight acid reaction to litmus, but it was found unnecessary to correct this. These two drugs were tried intravenously in fifty cases of uncomplicated acute gonorrhea in the male, and the local treatment given all cases was the same, namely, one daily irrigation with a potassium permanganate solution one to 8,000 to one to 4,000 and a hand injection of zinc sulphate or zinc sulphocarbonate 0.13 gram to thirty c. c. water, three times daily. A mild local treatment of this character is an essential, as it controls the superficial infection away from the circulation and assists in reducing the cellular infiltration, thus gradually bringing the two forms of treatment closer together.

Compared to the standard under the usual method of treatment, only two of these fifty cases showed a slight posterior involvement, and the average for a cure was twenty-three days. An aftertreatment examination of the two cases developing posterior urethritis, showed bad strictures. The time average could possibly have been reduced by one or two days, if all the patients had submitted to more in-

jections, as most of those taking over six injections were cured in less than twenty days. Injections were given daily if possible. Eighteen of the cases were given the injections, beginning the first day, five the second day, four the third day, two the fifth day, four the sixth day, six the seventh day, five the eighth day, three the ninth day, two the eleventh day, and two the twelfth day.

As some of the patients refused to continue the treatment, the number of injections given in a case varied; the least given was three, the most eleven. The smallest dose of borophenylic acid was 0.195 gram (three grains), the largest two grams (thirty grains); the smallest dose of sodium benzoate was two grams (thirty grains), the largest nine grams (135 grains); the largest dose of the combined was one gram of borophenylic acid plus nine grams of sodium benzoate. The quickest results were obtained in the cases in which the treatment was instituted within the first seven days and in those which received six or more injections.

Exclusive of the foregoing experiments, seven cases of acute gonorrhea were given the intravenous injections of the combined drugs, while an abortive treatment with silver nitrate was instituted locally. Four of these cases came to a successful issue inside of four days. The inconvenience, however, caused by the local reaction makes the method undesirable, and its uncertainty argues against its more general use. If an abortive treatment is a failure the time for an ultimate cure is usually greater. Even if all gonococci are destroyed in a few days, the following serous discharge and irritation last longer than in a case treated by mild solutions. In a few cases a weak silver solution was retained in the urethra for several hours at a time, through the use of a special apparatus; the results, however, were indifferent. So far, the use of weak antiseptics seems to fit the pathology best.

It is reasonable to believe that intravenous medication, in either a simple or complex manner, destroys or attenuates the deeply imbedded germs, that is, those propagating in the more vascular tissues, or else the medicine makes an unfavorable culture medium of these parts, while the local treatment destroys those on the surface of the infiltrated and nonvascular strata only, as no known form of local treatment penetrates to an appreciable depth. The difference in the time of treatment of the older methods and the one herein mentioned, is due to fighting the infection from two directions, and the only obstacle to really rapid results is the thick cellularly infiltrated and nonvascular area away from the circulation. After the disappearance of all gonococci, which now, under a better directed treatment, requires from five to seven days, it takes about ten days and sometimes longer to reproduce a normal mucous membrane. More accurate statistics on this will be given after a complete tabulation of more recent work.

The intravenous dose of the drugs used was built up by slow gradation, thus eliminating all danger to the patient. A chill of more or less severity followed the use of borophenylic acid and sodium benzoate in less than five per cent. of the injections; this occurred usually after one of the first three treatments, that is, before maximum doses were

reached. The larger doses of both the drugs produced decided dizziness at the time of the injection and a suffusion of the skin and conjunctiva. A moderate rise of temperature followed a few of the injections, not sufficient to be annoying. A slight nausea was produced in one case.

As the early work on this subject mostly consisted of trying to find acceptable drugs and their doses, more detailed observations were neglected. Certain general deductions were made, however, and these hold good to date:

1. The system is far more tolerant toward intravenous medication than it is given credit for. Large quantities of acceptable chemicals can be thrown into the blood and it is from the larger doses that results will be obtained.

2. Drugs given intravenously rapidly disappear from the circulation.

3. There is a marked difference in time in which different drugs are eliminated. This deduction was made from the analysis of the urine only. Evidently certain drugs enter into closer union with the tissues, and therefore are slowly eliminated. The difference in elimination was not due to an interference with excretion.

4. Some drugs can be recovered from the saliva and tears, others cannot. (The flow was stimulated and the saliva and tears collected shortly after the injection.)

5. Theoretically, or until further data are collected, it would seem that certain drugs have a more intensive and selected action on certain tissues. Over ten years ago I called attention to a peculiarly specific action of mercuric chloride, when given via the circulation, upon inflammations of the eye.

6. Some of the drugs prevented a putrefaction of urine standing at ordinary room temperature for several days.

7. The great tolerance of healthy kidneys before showing the slightest evidence of irritation.

8. The liver showed no palpable effects of the medication nor were there any symptoms ascribable to this organ.

9. No deleterious blood changes were noted.

10. When the urethral mucosa was sufficiently irritated to produce a high degree of hyperemia and a marked serous flow, positive findings were present shortly after the injections. Attempts to recover the drug from the usual secretions in acute gonorrhea were unsuccessful. As a severe irritation of the mucosa meant nothing more or less than an injury permitting leakage direct from the circulation, the presence of the drug injected was not surprising.

The general effects of intravenous medication on diseases other than gonorrhea have been watched during the last few years. Insufficient data prevent me from making any special statements, but favorable results have been noted in infections of the gallbladder, pyelitis, acne vulgaris, bacteriemia, rheumatism, tetanus, and pneumonia. Theoretically, beneficial results should be obtained in all infections, and special study should be directed toward pneumonia and infantile paralysis.

Literature on intravenous medication in general is so scarce that if much work has been done, it is still dormant in laboratory and clinical records. It

is partly in hopes of producing a stimulation sufficient to bring forth unpublished accounts of new drugs used, that this article is written at the present time.

29 EAST MADISON STREET.

THE PROGNOSTIC OUTLOOK IN MENTAL DISEASE.*

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INTRODUCTION.

In no other branch of medicine as in psychiatry is the science of prognostication of such significant value. Indeed its importance lies in the fact that a *dual condition is at hand*, that is the psychic and the physical. In many instances the somatic side is not of a critical interest, but the reestablishing of mental integrity to its full or even partial conservation is the main issue. Furthermore, there lies a great responsibility toward the patient's family, particularly from the standpoint of sociological and economic complications. To render a bad prognosis in a case of a favorable outcome may lead to disastrous financial and social consequences. Again, to find a good outlook for an incurable malady may produce similar evil results. With judicious and cautious reserve one must make the prognosis of a mental infirmity.

In the light of our present conception of psychopathology, a mental disease is viewed as a biological reaction to environmental influences, expressing itself in a maladjustment of an instinctive, physiological, biochemical, chemical, or physical type. Not infrequently the nature and character of mental reaction determines the prognostic outlook. What really signifies the malignancy or benignity of a psychosis is not one symptom, but the constructive semiological structure of the entire disease picture with a full knowledge of the personality of the patient prior to the development of the mental affection.

With these preliminary remarks, we are now in a position to discuss the prognostic outlook of the various forms of mental diseases, which, for convenience, may be divided into the following groups: 1, organic; 2, functional; 3, toxic; 4, traumatic; 5, developmental.

I. ORGANIC GROUP.

The fundamental disturbance in all organic psychoses is a definite anatomicopathological process which varies in extent and intensity. It may be laid down as a general rule, *the more superficial the reaction, the better is the outlook, and again the greater the damage to the nervous tissue, the more fatal the termination*. General paralysis is an example of the latter and cerebral syphilis of the former.

General paralysis is a chronic and progressive mental disorder, in which striking somatic signs are in the foreground. In addition, the higher mental faculties are markedly involved. The etiology of

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syphilis is no more questioned. The Wassermann test in the blood and fluid shows a strongly positive reaction. There is a lymphocytosis of the cerebrospinal fluid with an increase of globulin content, and the characteristic precipitation of the goldsol test. Recently Noguchi and Moore demonstrated the presence of *Spirochæta pallida* in the cortical layers of the brain in general paralysis. The anatomicopathological picture is striking and well defined. The course of the disease is progressive—fatal termination is inevitable, and this may result from exhaustion, inanition, cerebral hemorrhage, or intercurrent diseases. In some instances, death may be sudden, especially after a convulsion or cerebral hemorrhage.

The average duration of the disease varies—in the fulminating forms death may occur in less than a year. The usual duration is from two to five years. Remissions ranging from a few months to several years may occur, and they are more common in the agitated and expansive forms. Indeed, there are cases on record which were apparently free from active mental symptoms for fourteen and twenty-five years. However, these are rare instances. With the introduction of intraspinal treatment in psychiatry, considerable optimism was engendered among many clinicians, and indeed, some believe that general paralysis may be arrested in its incipency, provided that drastic treatment is employed. Some cases have been reported in which a remission occurred, and the patients appeared well mentally. Again in other cases no improvement was noticed. However, these results are only tentative and it is too early to use them for deductive purposes.

While it must be admitted that every case of general paralysis should be subjected to active antiluetic treatment, nevertheless one cannot be too optimistic regarding the curability of the affection. It must be borne in mind that in general paralysis, in addition to chronic meningeal infiltration, striking degenerative changes of the cortical tissue are present. It is difficult to conceive how reconstruction of such damaged tissue can be brought about.

Cerebral syphilis may be divided into meningeal, gummatous, and endarteritic. The prognosis of the meningeal variety is invariably good, provided that the actual injury to the tissue is not profound and that the patient has been subjected to early active antiluetic therapy. The progress of the improvement should be gauged not only by the Wassermann and cerebrospinal fluid findings, but also by the patient's general condition. However, the persistence of a strongly positive Wassermann test with a pleocytosis of the fluid indicates that the nervous system is not free from the luetic infection, and it may be of grave significance. In the gummatous type the outlook is not as promising as in the former, inasmuch as the syphilitic growth exerts a pernicious influence upon the brain tissue and defect symptoms occur not infrequently. In the endarteritic form the prognostic outlook is rather poor because of the diffuse vascular involvement with secondary changes. Apoplectic attacks manifest themselves and sudden death is of frequent occurrence.

In *senile psychosis*, the dementing process and the characteristic changes in the brain tissue are

quite prominent. The disease is progressive, and the patients, as a rule, die from some intercurrent malady, exhaustion or cerebral hemorrhage. The duration varies from several months to five or ten years.

In *arteriosclerotic insanity*, the course is variable and depends upon the extent of the involvement of vascular changes and the degree of injury to the nervous tissue. A striking feature in this disease is the apoplectic attack. In some cases a progressive dementia supervenes soon after; in others the psychotic symptoms may be slight; in still others a dementing state may remain stationary; and in still other instances fatal termination is quite rapid.

In *epileptic psychosis* the dementia is an important feature in the clinical display, and restoration of the mental integrity is not at all promising.

II. FUNCTIONAL.

The anatomical background in functional psychoses is not yet known. However, the psychogenetic element and the underlying psychosexual constitution are of prime importance in the development of the malady. This group may be divided into two large classes, malignant and benign. The former represents dementia præcox and the paranoiac group and the latter embraces manic depressive insanity, simple depression, and hysterical psychosis.

Dementia præcox is a chronic dementing psychosis in which emotional and volitional disturbances with distortion of personality are evident. The etiology of this disease is not known. According to Kraepelin, it is regarded as an organic affection in which autointoxication plays an important role. Bleuler recognizes the constitutional disorder as the primary foundation, but emphasizes the importance of the psychogenic factor in the determination of the psychotic symptoms. Another important point must be accentuated that dementia præcox usually develops in a peculiar type of personality known as "shut in" (Hoch). No matter what theory may be accepted, the fact remains that this disease is progressive in its nature, and the prognostic outlook is invariably grave as far as mental life is concerned. However, remissions of varying duration may occur, and there is a group of cases in which deterioration remains stationary and the psychotic content is not progressive, and such patients are able to get along outside of a hospital for the insane, provided that they are placed in a simple environment under proper supervision. This is also true of cases of the simple deteriorating form.

Although the psychanalytic method in dementia præcox offers great aid to our knowledge of understanding the various psychotic manifestations with their underlying mechanisms, nevertheless the contention of some that in its incipency the progress of the disease can be arrested by means of psychanalysis has not been borne out by our experience. So far, the cases reported are not convincing, and furthermore the diagnosis of dementia præcox is questioned. It should be borne in mind that in dementia præcox the infantile fixations are not of such plasticity as one meets in psychoneuroses, and furthermore the volitional disturbances with disintegration of personality do not make this disease amenable to this form of psychotherapy.

The *paranoiac group* forms another class of malignant psychoses, and by reason of the progressive systematized delusions and the impairment of the judgment faculty, the patients do not yield to rectification and readjustment. It is interesting to note that for many years some of these patients are able to be at large, but sooner or later they come in conflict with the law and commitment becomes imperative. True paranoia is rarely seen in the hospitals; some of the paraphrenics may likewise be able to adapt themselves to a less complicated environment, but as soon as their delusions of persecution and hallucinations become intense, institutional care becomes indispensable. None of these patients shows any deterioration in memory, but judgment is markedly affected. They may live for years, and death usually occurs from some intercurrent disease.

Of the benign psychoses the *manic depressive group* is the most important. This is an acute emotional disturbance, which may express itself in a depression or excitement or in a mixed phase. It is recurrent in nature, and heredity plays an important role. The attack as a rule is sudden in onset and the recovery is complete without defect symptoms.

The manic excitement varies in duration, lasting from a few days to several years; the average duration is from three to six months. The outcome is usually favorable; however, death may result from pure exhaustion; particularly is this true of the first attack. It is well to tell the patient's relatives that should no somatic complications set in, the recovery will be complete.

The course of the depressed form is rather protracted, especially in advanced life. The attack lasts longer than in the manic form. The average duration is about four or six months, and in some instances the upset may continue for several years. Physical complications may occur; death may result from inanition, and suicidal attacks are not infrequent.

The course and duration of the mixed form of manic depressive insanity is relatively longer than the manic and depressed phases; the average duration is about six or nine months. However, there are cases which last only a fortnight, and again the duration may be from one to five years.

In 1907, Dreyfus called attention to the fact that *involution melancholia* is closely related to the manic depressive group, and identified it with the *mixed form*; and later his contention received Kraepelin's recognition. In this group of cases, the outcome is favorable, provided that it is not complicated by arteriosclerosis. In a small percentage of cases dementia may be developed as a result of arteriosclerotic brain affection. In some cases the outcome is decidedly fatal, due to marked agitation and somatic complication.

Briefly stated, in all forms of manic depressive insanity the upset has a favorable outcome, and indeed without mental deterioration. However, in a very large majority of instances, the attack may recur. In rendering a prognosis of such cases, this point should be borne in mind, and the patient's relatives should be acquainted with this fact. Furthermore, every possible effort should be made to ascertain all the manifest causes that precipitated the psychosis, and in such a way that special adaptation for individual cases might become

necessary, with the aim of prolonging or even preventing the appearance of another attack.

In *simple depressions* and in *hysterical psychosis*, the outcome is very favorable, and under proper psychotherapy a recurrence may be prevented.

III. TOXIC.

This group of mental disorders is brought about by definite etiological factors. It may be divided into two classes—in one the poisonous agent is of an exogenous nature, for example, alcohol, morphine, cocaine, bromide, and other drugs. The alcoholic psychoses particularly delirium tremens, acute hallucinosis, and transitory confusional states, present a favorable course and outcome. Some cases of delirium tremens may terminate in a chronic mental state, and in others death may result from exhaustion, pneumonia, or cardiac dilatation. The acute hallucinatory form may also assume a chronic course with mental deterioration, simulating dementia præcox. The curability of alcoholic paranoia is very doubtful. The Korsakoff form of alcoholic mental disease has a grave prognosis because of the marked involvement of the somatic component and because of the marked toxemia for which alcohol alone is not responsible. However, in some cases improvement may be noticed, but the retention faculty remains impaired.

As a rule, the drug deliria under proper management could be easily controlled. However, in bromide intoxication, on account of the exhaustive features and other physical complications, the prognostic outlook as far as life is concerned is often doubtful.

In prognosticating alcoholic and drug psychoses, one should always bear in mind that there are two conditions present—the acute mental disturbance and the peculiar personality of the patient upon which the pernicious habit has been engrafted.

The other division of the toxic group is known as *infective exhaustive psychoses*, which is determined by definite physical conditions, such as infectious diseases, the puerperal state, and septic complications. To be sure, the course and progress of such mental upsets are determined by the intensity of the physical process. As a rule, if the disease is controlled, the psychosis has a favorable termination, provided that no other endogenous mental factors are involved.

IV. TRAUMATIC.

In *traumatic psychosis*, the prognosis depends upon the extent and character of the trauma. In uncomplicated cases, the patients make a complete recovery, except that amnesia for the acute onset may persist.

V. DEVELOPMENTAL.

Transitory mental disturbances may occur in idiocy, imbecility, moronism, and constitutional inferiority. In some instances the course of the psychosis may assume a chronic form.

CONCLUDING REMARKS.

In summing up the prognostic issue of mental diseases, we may say that psychoses may assume any of the following terminations:

1. Complete recovery with or without recurrence.
2. Recovery with defect symptoms.

3. The course of the disease may be progressive and may terminate in a state of intellectual deterioration, varying in intensity.

4. Progression of mental symptoms (as in the paranoiac group), but without true dementia.

5. Fatal termination, by reason of the nature of the mental infirmity.

We cannot close this paper without saying that all forms of psychoses, be they organic, functional, or toxic, develop upon an inferior mental soil. To quote from my former paper: "The question arises what specific type of psychic inferiority determines the nature of the mental disease. Meyer and Hoch showed that in manic depressive insanity and dementia præcox, the mental make-up is quite characteristic. Likewise, hysterical outbreak and paranoiac conditions develop in certain personalities. In a large majority of cases of general paralysis, I have found a peculiar form of nervous temperament, which in addition to syphilis is prone to develop this fatal disease. . . . A large number of cases of alcoholic psychoses are evidently engrafted upon a peculiar type of personality, and the habits of drugs invariably display striking psychopathic traits."

From this it may be readily seen that in dealing with the prognosis of mental diseases, we should not only take into consideration the acute disturbance, but the constitutional make-up of the individual is of equal importance. After we have succeeded in carrying our patient through the critical period of the disease, we should then direct our attention toward the bringing about of healthy mental adaptation for the individual case in question, and in this way we may hope to prevent a recurrence; *in other words, adjust the mental organism to an environment that would meet its needs without deleterious effects.*

SECONDARY CARCINOMA OF THE BONE.*

With Reviews of the Literature.

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Recently I came across a case of carcinoma of bone, the first that has come under my personal observation, and I regarded it as somewhat of a rarity, but upon looking up the literature I find it considerably more common than I anticipated, but deem it of sufficient interest to report. Incidentally, I reviewed the literature on the subject. I have begun at the present and have traced the subject back to about 1898. References to material prior to that time are covered mostly by dissertations which I have summarized. I find in recent years practically nothing has been done as regards treatment of this condition; I could find no notes with reference to Röntgen therapy which I rather expected to find.

These statistical data are not profuse, but what there is has been worked up well by German writers.

F. H. Tiele (1) has confirmed the conclusions put forward by von Recklinghausen in his monograph on the subject in Virchow's *Festschrift*, 1891.

Extensive carcinomatosis of the bones occurred in a man, aged seventy-one years, secondary to carcinoma of the prostate which has caused no symptoms. He had been admitted to the University College Hospital for painful swellings on his ribs and pain in his legs which he observed for two years before admission. Autopsy revealed the prostate moderately enlarged and uniformly infiltrated by a firm, whitish growth. A few nodules were seen in the bladder involving the mucous membrane. Pelvic glands were infiltrated with growth, but beyond these and the extensive deposits in the bones there were only a few nodules of growth in the pleura and in one bronchial tube. Deposits of growth occurred in the vertebræ, pelvis, scapulæ, ribs, bones of the limbs, and sternum.

As will be seen from the foregoing description, the deposits were very extensive, and their distribution supports von Recklinghausen's view that the primary deposit occurs in the marrow and that the subperiosteal growths are secondary to this and occur through the foramina of the bones. If now the bones be examined with this view, it will be evident that the growths are largest and occur most where the foramina are most marked.

It will, therefore, at once be evident, from a comparison of the localization of these subperiosteal carcinomatous deposits and the grouping of the large foramina in the bones for the passage of the vessels, that these subperiosteal carcinomata are due to the extension of intramedullary deposits through these foramina to the subperiosteal tissues, and are not primarily subperiosteal. These subperiosteal growths are not due to the extension of an intramedullary deposits into the subperiosteal tissues from erosion of the bone in front of the growth, as is evident from these cases where the bone maintained its shape and was nowhere eroded.

Von Recklinghausen showed that the bone metastases occurred in the vascular channels of the marrow and that the deposits first take place there, not necessarily by a mass large enough to block the channel, but by the stagnation of even isolated malignant cells in the periaxial stream in the medullary sinuses and their multiplications there. The vascular channels of the bones are relatively wide and are of a fixed calibre, and so do not undergo variations in size in correspondence with variations of the channels leading to them. Hence, when the extraosseous channels become narrower as the result of peripheral stimulation, the blood from them runs into a relatively much wider channel, the periaxial stream becomes slower, stagnates, forms eddies, and if malignant cells are present in the blood, they accumulate in the stagnating periaxial channel and multiply in the highly nutritive pabulum there, become adherent to the wall, and finally fill the channel.

This conclusion is strengthened by the observations of Bizzozero and Denys, who state that the leucocytes accumulate in the parietal parts of the marrow capillaries and undergo active multiplication there.

The lymphatic glands similarly favor the settling of malignant cells for here again there are relatively wide irregular channels with a slow stream.

Hence, according to von Recklinghausen, when malignant cells are circulating in the blood, the greatest number of metastases should occur in the bones, and in those bones which are subject to the greatest amount of strain and to the most frequent variations in temperature. He puts the order of involvement of bones from metastasis due to prostatic carcinoma as vertebræ, flat bones of the skull, fibula, tibia, radius and ulna, femora, pelvis, ribs, sternum, humerus.

The three chief sources of secondary carcinomatous deposits in bones are primary carcinoma of the prostate, thyroid, and mammary glands.

The order of frequency of affection of the various bones is about the same no matter where the primary focus existed.

Frequency of bone metastases in cases of prostatic carcinoma: Wolff, 1899, gives it as thirteen per cent.; Kaufmann, 1902, gives it as thirty-four per cent. Kaufmann

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found bone metastases in sixteen out of twenty-two carefully examined cases.

According to Limbacher, bone metastases occurred in thirty-seven per cent. of cases of thyroid cancer; and in fourteen per cent. of mammary cancer according to Leuzinger.

Thiele (1) reports a second case of prostatic carcinoma with a few secondary deposits in the vertebræ and ribs, with a few nodules in the lungs; the lung metastases in both cases were very few compared with bone lesions. He also refers to osteoplastic bone changes which occur in secondary carcinoma, but not in all cases.

His conclusions were: 1. That metastatic growths occur primarily in the medulla of bones. 2. That they spread to the subperiosteal tissues through the foramina and so occur where the bone is roughest and most porous. 3. The growths occur especially in the bones which are most liable to strain, injury, and variations in temperature. 4. The growths frequently show osteoplastic changes. The more infiltrating the deposit is, the greater the tendency there is to these osteoplastic changes. 5. These changes occur, not only in deposits from carcinoma of the prostate, but also in carcinomata when the primary focus is elsewhere.

From an analysis of the changes produced in bones by metastases, the following classification can be made: 1. Simple erosion of the bone by the growth, without any marked expansion or osteoplastic process. 2. Great expansion of the bone, osteoplastic processes marked in the bone. 3. Infiltration of the bone without marked expansion, but with osteoplastic changes. 4. Extension of the growth to the subperiosteal tissues, with or without osteoplastic changes in the subperiosteal growths.

The more slowly growing the metastases and primary growths are, the more infiltrating and less sharply defined the metastasis is, the greater is the tendency toward osteoplastic changes. Very rapid growths appear to produce simply erosion, less rapid produce expansion as well. Carcinomata of the prostate are usually very slow growing and their metastases are also very slow in growth and may apparently produce noticeable tumors for several years before the fatal ending; microscopically they are of an infiltrating character and show marked osteoplastic changes.

In rapid growing and sharply defined metastases, as in carcinoma of the breast, the osteoplastic change is very slight and erosion chiefly occurs.

Von Recklinghausen calls attention to a peculiar change noted in sections of a rib which had expanded from the growth of a metastasis in a case of epithelioma of the esophagus. The specimen came from a man, aged thirty-eight years; growth in the esophagus was small, there was extensive infiltration of the chest and abdominal glands by growths; there were deposits in the vertebræ, sternum, and ribs; there were no signs of joint affection.

The rib examined had in its midaxillary line a fusiform swelling an inch thick. On section it showed to the naked eye small nodules of cartilage. Microscopic examination showed marked osteoplastic changes all around the periphery of the bone, and in this newly formed bone were numerous areas of cartilage with typical cartilage cells; calcification had occurred in some areas. Direct transition of

cartilage cells to bone. The rest of the section showed infiltration by growth with elongated cells; fibrous looking stroma between malignant cells and bone cancelli; in others the cells were in direct contact with the cancelli. There was no bone formation in the growth. A similar change was observed in the vertebræ.

Sydney M. Cone (2) states in his preliminary: "Von Recklinghausen writes of osteoplastic changes in bone accompanying metastases from primary carcinoma of the prostate. He compares the changes with fibrous osteitis and osteomalacia of bone, and makes many valuable additions to our knowledge of the gross and microscopic structure of the bone in diseases. He records five cases of his own and refers to one of carcinoma of the prostate with subsequent metastases in the vertebræ



FIG. 1. Beginning destruction of neck April 6, 1914.

—that of Sir Henry Thompson. This case is reported in full in the *Transactions of the Pathological Society of London*, in 1854, v, p. 204, with a pathological report by J. Hutchinson. Saase has recently reported a similar case and gives a comprehensive view of the work of von Recklinghausen in this report."

Cone's case does not differ in any essentials from those previously reported, but is interesting as confirming several important points in the pathology of bone, and discrediting the existence of primary carcinoma of the osseous system. Cone's case and others he refers to lead to these conclusions:

1. Tumors like carcinoma of bone, without any evident primary focus, must lead one to suspect prostate or thyroid.

2. Endothelioma and carcinoma are not readily distinguished from each other.

3. Statical and traumatic influences are potent in locating the metastases.

4. The new bone formation and location of the metastases are significant of carcinoma of the prostate.

5. The metastases occur by the veins.
6. The organs are rarely the seat of metastases.
7. The pelvic lymph glands may not be involved.
8. Very small nodules of carcinoma may give rise to extensive metastases.
9. There is an extensive new bone formation (osteoplastic carcinosis).

John H. Musser (3) reports the case of a man, aged thirty-four years, civil engineer, suffering from anemia, polyuria, and nodules in the following order: Right upper maxilla; head of right tibia; metacarpal bone of right hand; upper right ulna; right femur at middle portion; left tibia; right sixth rib; nodes accompanied by considerable pain and tenderness. Autopsy subsequent to death from gastric bleeding, showed duodenal ulcer, multiple



FIG. 2.—Same as plate 1, taken eight weeks later, May 31, 1914. Rapid destruction of neck, osteoclastic as designated by Kolisko.

carcinoma of the bones, and polyuria. In summarizing his case he says:

Male, aged thirty-four years, primary carcinoma involving superior maxilla; secondary carcinoma of the bones; multiple fractures; diagnosis during life, syphilis and rheumatism; exact diagnosis of carcinoma could have been made during life if a section had been removed. Duration four years. Death from hemorrhage due to duodenal ulcer. Ulcer not suspected during life until the occurrence of the hemorrhage. Diabetes insipidus.

R. H. Boggs (4) states that carcinoma of the bone is scarcely ever recognized until a fracture occurs. Fractures are nearly always röntgenized and here a diagnosis of cancer is made.

His first case occurred in patient who had been operated upon for carcinoma of the breast five years before. She had had three operations. Her first symptoms were severe pain in region of right hip and sacroiliac articulation. She had a few nodules studded over the chest, which cleared up under x ray treatment. Complained a month of pelvic symptoms before she started treatments. Stepping off an elevator, she made a misstep and complained of severe pain in hip. Surgical consultation a month later. Surgeon diagnosed dislocation of the femur and referred her for x ray examination. This revealed bony changes, which might be described as honeycombing of the shaft.

He has seen three similar cases where spontaneous fractures followed carcinoma, and three more cases where the spine and pelvic bone were affected.

Another case of carcinoma (scirrhus) of the breast with early operation six years ago, began to complain three and a half years later of pain in lumbar spine and sacroiliac region. Pain was constant; radiographs showed extensive bony changes in pelvis, spine, and ribs. A year later, radiographs showed very little more bony destruction. No external recurrence.

All the cases mentioned were secondary to scirrhous carcinoma of the breast, and none of the patients had a recurrence in three to five years. This would seem to show that carcinoma of the bone is much more common in a slowly growing form than as a tumor of rapid growth.

Conclusion: "Carcinoma of the bone is not so rare as generally supposed and it is of clinical interest in connection with lumbago, rheumatism, etc. It has even been stated that metastasis into the bone is frequently the first evidence of a prostate tumor."

Hans Hässner (5) reports two cases of secondary bone carcinoma observed at the University of Munich, in which the primary site was in the stomach in one, and in the uterus in the other. He then takes up the frequency and distribution of the carcinomas.

Thyroid. Points of predilection in cases of carcinoma of the thyroid are the lungs and skeleton system. Kaufmann, 1879, offered statistics of twenty-three cases of carcinoma strumæ in which nine lung metastases and six bone metastases occurred. Braun increased it to thirty-seven cases with eight bone metastases. From this Leuzinger estimated that in twenty-one per cent. of cases of thyroid carcinoma metastases occurred in bone. Hinterstoisser found among fifty cases, twenty-nine lung metastases, and ten bone metastases. Paget reports on twenty cases in which bone metastases occurred in ten cases. Von Eiselsberg has published six different cases of bone metastases after adenocarcinoma of the thyroid, and Middledorf adds another. The bones most frequently involved are the cranial bones and the sternum. The primary thyroid carcinoma is characterized by its smallness, so that it is frequently not observed at all by the patient, although the bone metastases may be noted. Another point of note is the slow development of thyroid carcinoma bone metastases.

Carcinoma of the breast. Leuzinger has compiled the largest statistics:

Six Statistics from Clinics.		
	No. of Cases of Breast Carcinoma.	Bone Metastases.
Oldekop	250	5
Henry	196	4
V. Winiwaterr	173	7
Sprengel	131	11
Estlander	59	4
Billroth	49	4
	858	35

In these 35 cases the vertebrae were affected in 21, extremities in 11, and head bone in 3 instances of bone metastases.

Statistics from Autopsies.		
	No. of Cases of Breast Cancer.	Bone Metastases.
Torok	366	45
Sibley	61	10
Birket	37	6
Stommerfeld	30	10
	500	71

From this Leuzinger arrives at the conclusion that in breast carcinoma cases about fourteen per cent. of bone metastases occurs, or a ratio of seven to one. Of the forty-five cases reported by Torok, thirty-three showed metastases in head bones, then followed ribs, sternum, vertebræ, pelvis, and extremities. In the majority of instances they presented, not as solitary nodules, but widely disseminated multiple lesions, and especially is this true when the primary tumor presented the form of a slowly growing hard scirrhus of the breast.

Carcinoma of prostate. Von Recklinghausen was the first to call attention to this form by reporting five cases. Later Erbalch compiled three primary prostate carcinomas with osteoplastic bone metastases and reports in addition on three others, one by Saas, one by Sidney M. Cone, and one by Bamberger and Paltauf.

Carcinoma of the uterus. Blau compiled ninety-three cases from the Berlin Pathological Institute, and Dybowski continued the statistic by adding 110 further cases. Of Blau's ninety-three cases, six are characterized by bone involvement, only two of which were true metastases; in the others direct extension was involved. Dybowski brings it up to five true bone metastases. In a total of 203 cases of cancer of the uterus seven bone metastases were noted, or 3.5 per cent.

It has been usually accepted that when bone metastases occur in primary uterine cancer, the pelvic bones are affected above all others, the sacrum and the lower lumbar vertebræ. In Hässner's case of advanced primary uterine carcinoma, however, the metastatic site was far removed (in the tibia) and was a single solitary tumor.

Gastric carcinoma. This is not very common, owing probably to the fact that the cancer is usually a rapidly growing malignant body, causing death before bone lesions appear. In cases where bone lesions were found, it was noted that the primary stomach lesion was indurated, small. Schweppe reports a case of widely disseminated bone carcinoma due to a primary hard gastric cancer which had existed for some time without causing the slightest typical symptoms. The bones involved were the posterior portion of the occiput, the right femur in its upper and lower third, and numerous vertebræ. Perls found a similar case; a firm, fibrous carcinoma in the scar, metastases in ribs and both uppermost lumbar vertebræ. Hanseemann reports a case where for an apparent bone sarcoma the left femur was amputated. After the death of the patient a carcinoma ventriculi was found, which had given no discomfort during life. The supposed sarcoma was found, microscopically, to be a carcinoma. Goldscheider observed a similar case; death here was due to compression myelitis from vertebral carcinoma. So in Hässner's case, the gastric cancer symptoms were entirely absent during life, only the vertebral metastases caused trouble. Gaertner reported a case of primary gastric cancer whose entire clinical picture was controlled by a severe pernicious anemia. The loss of blood from the ulcerative gastric cancer could not produce such a condition, and the explanation was found in a microscopic examination of the bone marrow, which was found most extensively carcinosized.

Carcinoma of the kidney. Rubenstein has collected seventy cases among which there were three with secondary bone carcinomata, one on the cranium, one on the twelfth thoracic vertebra, and one on the seventh rib. Rohrer finds in 115 cases of primary renal carcinoma metastases, in the other organs in fifty, among these four bone metastases or 3.4 per cent. of all cases. Hentze with two cases of bone metastases among fifty-seven primary renal carcinomas has the result: 3.6 per cent. Bone metastases in other organs are rare; only isolated cases are found in the literature.

Throat. Oster, 1880, observed a metastasis in the humerus after esophageal carcinoma. Fitting reported a case where cancrroid of the ulna led to a long search for the primary site, which was at last found in the larynx on the plica epiglottica sinistra. A multiple carcinosis in the left humerus, fe-



FIG. 3. —Same as plate 1, taken thirteen weeks later, June 23, 1914.

mur, and in the vertebræ, after primary pulmonary cancer, is described by Deuchler. Erbsloh reports multiple bone metastases after primary carcinoma of the biliary ducts.

Bladder. Geissler has reported a case of primary bladder carcinoma. This was discovered only two months after extirpation of a large scapular tumor, when the patient came in with a hematuria. Fuzinami reports the very rare case of metastasis in left femur with spontaneous fracture following primary cancer of the rectum which remained latent.

We conclude from the foregoing that of primary carcinomas, thyroid cancer ranks first in relation to bone metastases; then follows mammary carcinoma, and on a par with it is prostatic carcinoma. Then come uterine cancer and probably renal cancer. Hässner then discusses the pathology and histological study from von Recklinghausen's point of view, whom he quotes extensively.

Bretschneider (6) states that in the cases reported by von Recklinghausen, Sasse, Braun, Bamberger and Paltauf, Sidney M. Cone, and Erbsloh all showed a great similarity as regards the structure of the primary lesions and the regular dissem-

inated distribution of the bone metastases. Why the prostatic and also the mammary cancers tend in their skeletal metastases to new formation of bone tissue, while in other carcinomas, for example, the thyroid, almost never osteoplasty is observed, is still unexplained.

Also, why is it that especially prostatic carcinomas, also mammary and thyroid cancers, affect the bone marrow by preference, while in other primary carcinomas this preference for the bony apparatus is not observed? Neuser supports the theory that in the prostate, breast, and thyroid, we see the links of a system which are in close relationship with the blood. This relationship is manifested by increased bone marrow elements in the blood preparation.

Bretschneider reports two cases, one with primary carcinoma of the prostate with metastases of the



FIG. 4.—Upper end of femur; complete destruction of head, neck, and tuberosities.

bone marrow of long bones, the vertebræ, and ribs. The second case was osteoma malignum; carcinomatous adenoma nodules in the thyroid lobes, metastases in the left femur, and in the pelvis with spontaneous fracture; metastases of the ribs projecting into the right pleural cavity; metastases at the ribs near the vertebral column right and left; sero-fibrinous pleuritis on the right side with circumscribed adhesions; pleuritic metastases of both pleuræ, etc.

M. Matsuoka (7) reviews the literature, cites numerous authors, and adds bibliographical references, in addition to reporting a case of secondary carcinomatosis of bone in a case where he was unable to discover the primary lesions. He removed the carcinoma of the left tibia by amputation. Metastatic inguinal glands were also found. The patient recovered, but cachexia progressed so that no doubt finally the primary carcinoma will be discovered.

G. H. Stover (8) reports:

A case of a female, aged over sixty years, suspected of chronic osteoarthritis by the attending physician. On going out to x ray this patient, Stover noticed a scirrhus con-

dition of the breasts. Röntgen examination showed multiple lesions in the ribs, scapular heads, clavicles, and other bones. The people were Christian scientists and had little use for M. D.'s.

His second case was of a female, aged forty-eight years, confined to bed for months from stiffness and severe pain in back. Sudden onset of pain followed moderate exertion of moving in bed. This pain appeared in right arm. Röntgen examination showed a spontaneous fracture in a typical carcinomatous area in the shaft of the bone. Stover made the diagnosis and suggested that an examination would reveal a scirrhus carcinoma of the breasts, which proved correct. He found multiple cellular defects in the clavicles, scapulæ, humeri, vertebræ, ossa innominata, trochanteric region of the femora, and in the shaft of the left femur. All were typical lesions of bone carcinoma. He was not permitted to carry his observations further.

Leo Nisnjewitsch (9) states that E. Kaufmann published in the German literature 100 cases of prostatic carcinoma with bone metastases in thirty-four cases or thirty-four per cent. In 1904, he reported twenty-four cases of prostatic carcinoma, of which fourteen came to autopsy at Basel; among the latter bone metastases occurred in ten, or 71.4 per cent., eight of these being associated with ossifying carcinosis.

Total cases of carcinoma mammae, 500; seventy-one bone metastases, or 14.2 per cent. average. Leuzinger deducts therefrom that in at least fourteen per cent. of cases of mammary cancer bone metastases occur, a ratio of one to seven. In 1900, Müller mentions fourteen cases of mammary cancer with six bone metastases, giving 42.8 per cent. The only other form of carcinoma in which bone metastases occur very frequently, is carcinoma of the thyroid. C. Kaufmann reviews twenty-three cases in which nine showed lung metastases, and six bone metastases, or twenty-five per cent. Braun, more recently, compiled 100 cases of carcinoma of the thyroid, and found in addition to the six cases mentioned by Kaufmann, only two more, a total of eight. The eight in which bone lesions occurred were found in only thirty-seven cases (twenty-three by Kaufmann and fourteen original). In view of these figures we should have 21.6 per cent bone metastases in thyroid carcinomas, while taking Kaufmann's cases alone it would be twenty-five per cent. Von Eiselsberg reports on eight cases of thyroid carcinoma with bone metastases. Müller, in his inaugural dissertation, reports on twelve cases of bone metastases in thirty-four thyroid carcinomas, or 35.2 per cent. Hinterstoisser, among fifty cases of thyroid carcinoma from the Vienna pathological institute, found twenty-nine cases of lung and ten cases of bone metastases, or twenty per cent. According to this, thyroid carcinoma is followed much more frequently by bone cancer than mammary carcinoma; only we must remember that the former is a rarer form. Among the 548 carcinomas of von Winiwarter were only four true struma carcinomas or 0.73 per cent., and Gurlt in his statistics comprising 11,131 carcinomas, found only twenty-seven struma cancers, or 0.24 per cent. The prevalence of mammary cancer averages about 12.93 per cent.; therefore we should have one thyroid carcinoma to fifty mammary carcinomata.

According to the report of the committee for cancer research of October 15, 1900, there were found among 7,725 uterine, 1,866 mammary and 1,555 gastric carcinomas.

Blau gives statistics of ninety-three cases of carcinoma uteri and Dybowsky of 110, a total of 203 cases of uterine carcinoma with seven bone metastases or 3.5 per cent. Müller found in uterine carcinoma cases (eighty-one) only two cases of bone metastases or 2.4 per cent.

Müller also reports 143 cases of gastric carcinoma with bone metastases in two or fifteen per cent. Zade, from the Freiburg pathological anatomical institute, reports one case of gastric carcinoma with numerous skeletal metastases. Schweppe also reports gastric cancer with general carcinosis in a woman, aged forty-five years, in which section showed metastases in the bone system.

Esophageal carcinoma is also associated with bone metastases, but not often. Müller has collected seventy-two cases of gullet cancer with six bone metastases, or 5.5 per cent. In point of metastatic bone frequency, we find that prostatic carcinoma ranks first, then mammary and, third, thyroid carcinoma. Other organs are rarely noticed and only by bone metastases in late stages.

Müller studied the autopsy records of 12,730 cases at the Basel pathological anatomical institute from 1871 to 1905, a period of thirty-five years. Among them were 1,078 carcinomata or 8.47 per cent. Chronological study showed a decided increase in later years. Among these were 309 gastric carcinomas; 159 uterine carcinomas; 101 esophageal carcinomas, and, fourthly, sixty-three mammary carcinomas. The bone metastases of carcinoma are as follows:

Organs.	Carcinoma.	Bone Metastases.	Per-centage.
Stomach	309	8	2.5
Uterus	159	8	2.03
Esophagus	101	7	6.9
Mamma	63	33	52.3
Rectum	57	6	10.5
Gallbladder	56	2	3.5
Thyroid	29	10	34.4
Sternum	20	1	3.4
Prostate	19	15	78.9
Pancreas	19	2	10.5
Lungs, bronchi	19	4	21.05
Urinary bladder	17	2	11.7
Liver	15	3	20.0
Pharynx	10	2	20.0
Kidney	14	1	7.1
			104

In the clinical material of mammary cancer, a total of 858 cases with 144 bone metastases (16.5 per cent.), the vertebræ were affected twenty-one times (2.4 per cent.), the extremities eleven times (1.2 per cent.), among the bone metastases of the 144 cases of metastases alone, we have vertebral metastases in 14.5 per cent., of the extremities 7.6 per cent., and skull metastases in two per cent.

The author studied his material and established the following order:

1. Vertebral column	49 or 28.9 per cent.
2. Sternum	30 or 17.7 per cent.
3. Femur	27 or 15.9 per cent.
4. Ribs	25 or 14.7 per cent.
5. Humerus	13 or 7.6 per cent.
6. Skull	12 or 7.1 per cent.
7. Pelvic bones	9 or 5.3 per cent.
8. Tibia	2 or 1.1 per cent.
9. Clavicle	2 or 1.1 per cent.

In the study of his material he found that on the vertebral column is found either isolated cancer or the entire vertebra is affected; there will be entire destruction of the vertebra at one place and again only small affected areas. The site of the cancer varies also; the anterior, posterior, and lateral surface being mostly affected. In addition, the ver-

tebral column is characterized by extensive disease of several vertebræ, while the more removed vertebræ are but slightly affected or not at all. This is hard to explain. Whether here lymphatic stream conditions play a part he is unable to say. On the femur the cancer masses are encountered most frequently at the proximal ends and most commonly in the upper part of the marrow cavity of the diaphysis, as well as the neck, and frequently also in the head, less often in the trochanter. Occasionally the lower portion of the diaphysis as well as the epiphysis is involved.

On the pelvic ring the metastases are usually situated in the iliac fossa and on the outer *Darmbeinschaufel*, although it may occur at the promontory, linea innominata, sacrum, margins of the foramina sacralia. On the ribs, the angle and the anterior section seem to have the preference, whereas in the sternum the distribution is diffuse. On the skull, the parietals and frontals are most commonly affected, more rarely the temporals. Of the humerus the same is true as of the femur. The same is also true of the tibia and fibula.

Bone metastasis begins as a rule at the marrow or periosteum where osteoclasts are found. Cancer emboli do not gain an entrance into the firm bone substance or they get no opportunity to develop. The periosteal cancers usually form circumscribed, projecting tumors, while in the myelogenous forms a diffuse infiltration of the entire bone is much more common. This diffuse infiltration is peculiar to bone; although very rarely met with in other organs, it is quite common in bone.

Carcinoma produces various changes in the bones. There where the carcinoma excites new formation of bone substance, it is designated by von Recklinghausen as osteoplastic, ossifying; there where rarefaction is caused, Kolisko designates it as osteoclastic. Transitional stages also are met with, and both conditions may be seen side by side. In mammary carcinoma, as well as in thyroid and prostatic carcinoma, construction and destruction occur simultaneously. Only the prostatic carcinoma is characterized by diffuse expansions, bony metastases over the entire bony system, combined with osteoplasia, or in other words, osteoplastic carcinosis. The theory of Kolisko, that the slow growing of certain organs leads to osteoplastic bone carcinosis, the more rapidly growing, medullary cancers to osteoclastic forms, cannot be accepted in this sense, according to Kaufmann, because in prostatic carcinoma one may observe both processes side by side.

SYMPTOMS.

When bone metastases occur early, while the primary area is still small and insignificant, the patient seeks the physician on account of the secondary suffering. Examination by the physician then reveals that prostatic, breast, gastric carcinoma, etc., is the primary focus of the bone tumor or there is a history of operation for cancer at some previous time. The symptoms of bone metastasis depend on the location and rapidity of growth of the cancer. Bone pain occurs in the later stage and is often unbearable, as was the case in my patient. The affected skeletal areas show various deformities after localization. In vertebral metastases growths, angular or curved

like cyphosis, with or without spinal cord symptoms, occur. Metastases in the bones of the skull cause symptoms aside from the local bone pain. In metastases of the extremities, pain, loss of function, and deformity occur.

TREATMENT.

As to the operability of bone carcinoma, this is indicated only in solitary tumor, and even in these cases it is doubtful whether surgical procedure will effectively remove all cancerous strata. I can find no mention of x ray or radium treatment in these cases.

Dr. J. B. Murphy reports in one of his recent clinics, resection of the upper end of the femur for carcinoma secondary to breast, and transplanting of bone:

Miss M. B., aged fifty years, trained nurse, had one sister die of tuberculosis, otherwise family history negative. Had the usual diseases during childhood; measles,

about; upon examining her, I could find nothing to indicate a fracture, but she complained of great pain under certain manipulation which was referred to the region of the groin. After having her x rayed on two different occasions to convince myself there was not an impact fracture of the hip, I kept her in bed for a couple of weeks. The pain gradually subsided and she apparently got entirely over her trouble and was able to resume her duties.

The latter part of December, at which time after considerable activity going up and down stairs caring for a very sick patient, this soreness in the hip gradually returned, and within the course of a week was unable to get around; from this time on she suffered intensely with pain, which usually was referred to the right groin, and often in the sacral region, but the most noticeable pain was in the groin; any motion of the hip gave her great pain. At this time another x ray was taken, which proved to be negative.

A diagnosis of probable metastasis in the joint was made, but the x ray examination proved to be negative; about every two weeks an x ray examination was made. The patient suffered a great deal most of the time and it was not until April 6th, that there was any evidence of metastasis. At this time there could be seen on the x ray plates a little roughening and thickening of the periosteum on the superior border of the neck of the femur; from this time on there was a decided change in each x ray plate, showing a gradual absorption of the neck, which eventually involved the trochanters and the upper part of the shaft.

The only relief that I could give her was by applying the Ruth-Maxwell traction apparatus; in the later stage of the disease it was necessary to keep her under the influence of narcotics. About the first of June, there appeared a swelling near the upper part of the frontal bone, the size of an English walnut; the swelling was firm and after existing for about two weeks, gradually disappeared, but recurred again about the middle of August, and was permanent until death. Two weeks before death, it became soft, felt almost as though there was fluid under the scalp.

Autopsy report. The body was that of a woman of about the age given clinically; showing a very moderate emaciation, but did not present the cachectic color sometimes associated with carcinoma. All muscles were considerably below the usual tension found even immediately after death, to say nothing of a total absence of post mortem rigidity. On dissecting back, the soft parts covering the anterior chest wall, considerably firm fibrous scar tissue was encountered, as result of scar resulting from bilateral breast amputation. On the right side in the scar tissue

were found numerous carcinomatous nodules, situated most of them in the soft parts, a few attached to the periosteum of the ribs, and some of them quite firmly adherent to the intersegmentary covering. On opening the chest cavity, a small amount of blood stained fluid was found in both pleural cavities. The pleuræ of both lungs were about equally covered with multiple carcinomatous nodules, varying in size from a millet seed to that of a large split pea. There was no acute pleuritis as is sometimes seen in early carcinoma metastases. On cut sections of lungs there were found occasional nodules in the tissue of the lung proper, not more than ten or twelve in either lung. The heart and its coverings were found entirely normal. The periosteal cavity contained perhaps a trifle more than the normal quantity of fluid, not blood stained. The liver was a trifle larger than normal, and on its surface could be seen numerous adventitious bodies, which on cross section proved to be carcinomatous nodules, varying in size from that of a pea to that of a small walnut, perhaps twenty throughout the liver. There were no metastases in the alæ or various rami of the os innominatum.

The upper part of the femur was dissected out and showed complete absence of the entire upper end of the femur, including the greater trochanter, the angle of the neck, and the head itself; the upper end being beveled at an angle of about 135°, its surface looking upward and toward the acetabulum which was correspondingly, though not greatly, eroded. No other long bones were suspected

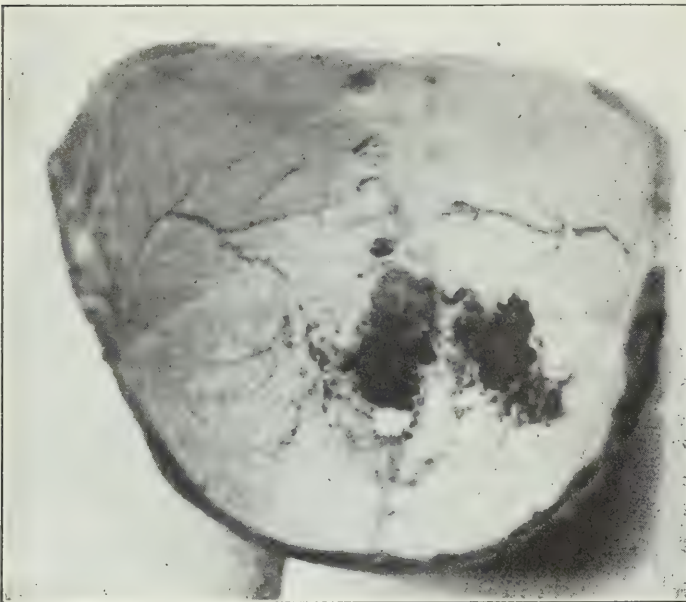


FIG. 5.—Showing involvement of frontal bone, inner surface.

mumps, chicken pox, also scarlet and typhoid fever. Was operated upon for appendicitis in 1912. Had at various times mild attacks of indigestion and considerable gulping of gas, a condition brought on by injudicious eating; usually persisted for some time before she was able to get rid of it, which was accomplished by being cautious about her diet and bowels, as she suffered considerably from constipation.

About twenty-three years ago, she noticed a lump in her right breast in the upper outer quadrant; this lump was pronounced a fibroadenoma and was removed under an anesthetic; the wound became infected and took thirteen weeks to heal. From that time up until May, 1912, it had not given her any trouble, but she noticed after receiving a slight blow to the breast that a mass was reforming under the old scar, for which she consulted me.

A diagnosis of carcinoma was made and a radical operation done; she made an uneventful recovery and appeared to be perfectly well until the following August, when she called to see me again with a distinct mass in the left breast, deeply seated in the central part.

A similar diagnosis was made and a radical operation was done; specimens from both breasts proved microscopically to be carcinoma. For the next two years she had excellent health and suffered no inconvenience from her previous operations and followed her usual occupation. In September, 1913, she fell down a flight of stairs, injuring her left hip, which made it very painful for her to get

of being the seat of metastases, and were therefore not examined.

In the frontal bone, with its posterior margin one half inch anterior to the coronal suture and fully one and one half inch in the anteroposterior diameter and one and three quarter inch in its transverse, were a number of metastases, plainly consisting of three growths very soft and jellylike in consistence, elevated about five eighths of an inch and surrounded—both in the periosteum and in the fibrous coverings of the skull—by marked hemolytic pigmentations. On maceration, the outer table presented the usual ragged, moth-eaten hole to correspond; on its outer surface three distinct metastases. On the inner table the holes become confluent and were two large irregularly shaped openings. The underlying meninges were indented, and similarly pigmented.

All other organs, the stomach, intestines, spleen, kidneys, bladder, uterus, etc., showed no change worthy of mention.

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ROENTGENOTHERAPY IN CANCER.

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A vast amount of skepticism exists regarding the curative properties and value of the Röntgen ray in the treatment of cancer, although our present knowledge, latest apparatus, and improved technic have given it universally a valuable and proper place in battling with this scourge. Today every intelligent person who has cancer must clearly recognize that his health and safety depend on the power and efficiency of the agents employed. Electricity, light, and heat have long been used in the treatment of cancer under the name of solar therapy, actinotherapy, etc., the idea being to destroy or carbonize the malignant tissues. The discovery of the Röntgen ray placed in our hands a much more powerful and efficient weapon than ever known before. It exerts a selective action upon inflamed cellular structures, soothing, healing, sedative, or destructive as the operator may desire, or the situation calls for, this being governed by dose, penetration, and quality of the ray. Massive doses cause inhibition and atrophy, small doses cause stimulation and growth. Elaborate description of the degree of vacuum of the tubes, penetration, strength of current, voltage, and ampérage may be omitted and the results only considered.

Many in the debate have ascribed the greater significance and scientific value to the radiograph or skiagraph, to its various applications in diagnosis, to its power of detecting diseases, and to its physics, but for my part, I think, having used both constantly, that experience and observation show that the curing power of the x ray is, with respect to its other applications, as three to one.

I am disposed to think that Hooper has assessed with strict accuracy the value of the x ray in cancer. He writes:

The treatment is chiefly by x rays and radium therapy, though other methods of electrical treatment are used to aid these. The former method is divided into: 1. Prophylactic; 2, palliative; 3, curative. The first is the administration of x rays at regular intervals after operation with the object of preventing recurrence. It has been found that patients so treated improve in general health, and in some cases recover freer movements of the limbs more rapidly.

Hooper's article is entitled *The Electrical and Radiotherapeutic Department of the Cancer Hospital (Free) London*; it is published in *Hospital*, 56, 489, 1914, and I have quoted it as the best antidote to the surgical bane. It is a useful lesson; the fearful round of operations drains the cancer victim of his vitality—and those who crave to be restored to health are often better fitted to have the x ray than the knife. They have, however, the consciousness of the worth of surgery to support their load—a consciousness naturally fortified with stability by the surgeon—but a consciousness that there are still other means should be so strengthened that it haunts the memory of the patient. For cancer there is sometimes no other remedy—unless it be to avoid all surgeons and the knife.

I do not write thus from any predisposition in favor of the x ray, though it ranks among the best methods. I am not for or against any method when rightly used, in other words, I am not professing a faith, and, let me add, I entertain a dread of anything like advertisement befalling me. The stand made today by those who employ the x ray as a specialty is that its mode of action is not always understood. Doses are not easy to measure; technic is not simple and direct like that of excising a superficial tumor. With respect to these matters two errors seem to prevail.

Some surgeons have a stupid contempt for the x ray therapy. W. L. Rodman, for example, argues that it is futile in cancer of the breast, that is to say, in cases susceptible of operation. (*Journal A. M. A.*, February 27, 1915). To this it might be answered by a phlegmatic observer that a mere desire of the surgeon to use the knife, if not accompanied by good sense or discretion, will seldom be very serviceable to himself or to others; that the man, who in his benevolent enthusiasm for surgery will cut off a harmless organ or stationary tumor, not forgetting to deprive the patient of hope in other means; who shuts the doors of progress and sets his face against the new light which is setting in, is the true type of those who oppose simpler methods of banishing cancer, whom it might be well, in spite of their benevolent enthusiasm, to put out of countenance with a little criticism.

If the blanks in surgical statistics were filled we should have a very different story to read. It is natural not to make sufficient reference to the ultimate results of operations, and no one can blame surgeons for bringing forward the brilliant and prompt effects of master hands.

When one reads the recent literature of the x ray, it is impossible to resist the impression that the expert can proceed to use it very much in the same way that a surgeon proceeds to use the knife or a weaver to weave his cloth, for it is their business to

be proficient in the details of technic and anatomical construction. The x ray special man, if he is a first class man in his work, will know for instance the strength of the ray he is using, and with all the experience and rules of the best clinics and teachers behind him to influence and instruct his work, will turn out an essentially sure and conservative, though novel, result. Such effects, we learn from Bumm (1), are possible even on cancers that lie deep. He, as well as Amann (2), has been able to employ large doses of hard rays; they have used rays penetrating to a depth of ten cm., and, though deep radiation has its strict boundaries, it has been effective in uterine cancer, and still more so in cancer of the breast.

Cancer in its early stages, particularly of the mammary glands or of the face, tongue, or mouth,



FIG.—Case II showing healed ulcer after massive doses.

epithelioma, lupus vulgaris, etc., are amenable and the largest percentage of the cases are cured by the x ray. Such is the consensus among the majority of Röntgen ray specialists, and it is in this field of therapy that its greater value lies, but the prejudice caused by early burns, and the loose statement that such burns produce cancer has retarded its popularity. Increasing knowledge and improved apparatus and technic have overcome this disability, while faulty technic will account for many failures or incomplete results. In preventing metastasis and healing ulcerating areas or inhibiting cellular proliferation of malignant tissue, I find massive doses to be the keynote of success. If it has been granted that the Röntgen ray will cure early superficial cancer, the assertion of cures in the deeper structures should receive respectful attention; it is a matter of depth of lesion, penetrability, and avoidance of injury to the skin. Numerous instances are reported of old and deep adhesions and cicatrices having been absorbed by the rays, and the surgeon of today advises raying before and particularly after operation in cancer suspects, as a prophylactic, also in inoperable cases to ease pain, and comfort the patient. Its biological action is not yet fully known,

but we do know that when it is properly administered, localization of the disease and atrophic action are speedily established, as is shown in induced menopause, fibrosis, and regression of cancerous nodules. The majority of cases have a seeming individuality, however, and no one technic will influence all alike. A brief outline of a few cases at random may be of interest.

CASE I. Woman, aged forty-four years, condition diagnosed in Long Island College Hospital as carcinoma of cervix, patient suffered from constant flowing, great emaciation, exhaustion, and cachexia. Examination revealed erosion of cervix with grayish slough and characteristic odor. Extirpation was offered and refused owing to extreme weakness through hemorrhage. Irradiation began May 10th and continued until August, ten minutes daily through a speculum to cervix and ten minutes through abdomen over pubis, for its sedative effect, massive doses being given. A topical application of a twenty per cent. aqueous solution of ichthyol with a pinch of tannin on tampon was applied to cervix after each raying. The flow was immediately arrested, the erosion healed, menopause became established, and nutrition rapidly improved. The irradiation was continued for an additional seven months, every third day, and all evidence of the local lesion and malignant character disappeared, except an irregular cicatrix, and now after eight years, the woman is apparently well and active, having gained about forty pounds in weight.

CASE II. Woman, aged forty-seven years, large, florid, and well nourished, menstruation irregular, had right breast removed; diagnosis, cancer. Examination showed a prompt recurrence in the scar with hard nodules scattered throughout the skin below the wound and around the right side. The left breast was involved and also swollen to double its normal size, and indurated showing the disease attacking there. Irradiation was advised as a forlorn hope; massive doses daily for a month were given, then every third day for two months, then once a week, then every two weeks.

The figure shows a healed ulcer, a flattening out of the growth, reduction to normal size and texture of the left breast, and resorption of the nodules in the skin in Case II. The raying will continue for a year at least intermittently, as symptoms indicate. It is to be remembered this was a hopeless case from the surgical standpoint, and I have reason to believe the patient will live many years.

CASE III. Woman, aged thirty-nine years, twelve years ago was in Bull's Sanitarium and discharged as inoperable, owing to valvular heart affection; diagnosis, carcinoma of uterus. Examination revealed a fungating growth, one inch and a half by two inches, involving the anterior half of uterus with ulceration, occasional flooding, and ichorous discharge; tenderness over abdomen, parametric adhesion, and a mild subacute peritonitis existed. The same technic was used as in Case I, with slight modification and equally good results. The patient at fifty-one years, attends to her social duties, is the wife of one of our university professors, and is socially active.

CASE IV. Woman, aged forty-one years, single, school teacher; diagnosis, bleeding uterine fibroid about the size of an orange. Constant flowing for six months. Heavy irradiations through abdomen alone were given every second day for six weeks, when flowing and discomfort ceased altogether. For four months more semiweekly irradiations were administered; owing to her employment, no more could be given. After a year and a half with an occasional irradiation all evidence of the fibroid disappeared and she is now attending to her school duties. No other treatment was administered, except a rectal suppository of belladonna, camphor, and tannin. Menstruation ceased in this case after the second or third month of raying, which is the usual result in heavy irradiation.

Three of my cases of carcinoma of the tongue within the year have responded and been healed with massive doses of the rays, the disease being attributed to decaying teeth, this being a fertile

cause and infecting the gastric tract. It is the duty of physicians carefully to examine the mouths and teeth of their patients. Bacteriologists inform us when teeth are neglected twenty odd colonies of harmful bacteria flourish in the mouth, and the cultures from an ordinary tooth brush are comparable to sewage; decay and cavities in the teeth furnishing culture media which do endless harm.

REFERENCES.

1. BUMM: *Münchn. med. Wochenschr.*, 1914, p. 1601. 2. AMANN: *Ibid.*, 1914, p. 1716.

33 EAST THIRTIETH STREET.

BLINDNESS OF THE NEWBORN.

Ophthalmia Neonatorum.

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City of New York; Secretary, American Society of
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(Concluded from page 1096.)

Treatment of ophthalmia neonatorum. If competent assistance is not at once available, the mother or the nurse may do much to restrict the progress of the disease. The eyelids must be separated as often as necessary to prevent the accumulation of pus between them, and the eyes washed out with lukewarm water or, better still, with a saturated solution of boric acid. In the absence of boric acid, a teaspoonful of bicarbonate of sodium (baking soda) to a pint of boiled water may be used as a temporary expedient. Absorbent cotton is usually available and this wet with the lotion may be used. By squeezing this over the eye, the solution is allowed to trickle into the eye at the nasal side and gently wash away the pus. This is a safe procedure if medical assistance is near at hand. Such a cleansing of the eye may be necessary in the acute stage at intervals of an hour or less.

It is also necessary once a day, or in severe cases, morning and evening, to instill one or two drops of a two per cent. solution of nitrate of silver into the eye in the same manner as has already been described. A bandage must not be used, as the free escape of pus is imperative.

If only one eye is infected, the other eye should be at once protected by a watch glass or a transparent celluloid vaccination shield, held round the edge by two pieces of adhesive plaster and accurately fitted to the nose, cheek, and forehead over the still healthy eye. This eye, however, must remain visible and not be covered, save in the manner indicated. It must be carefully watched, and if infection begins to develop, the same treatment as that just described should be at once begun. In any event, as a precautionary measure, a single drop of the two per cent. nitrate of silver solution should be instilled into the apparently unaffected eye. This can do no possible harm and may be the means of destroying the few gonococci which are present, thus preventing their multiplication and the resulting inflammatory process.

Many excellent and conservative authorities have recommended that the glass tube of an ordinary

medicine dropper be connected with the delivery tube of an ordinary fountain syringe and this apparatus thus combined be used for irrigation purposes (Fig. 12). Personally the writer is opposed to the use of syringes, even in experienced hands. It is doubtless a simple matter to cleanse an eye with these appliances, but it is almost equally simple to do harm with them. The ordinary medicine dropper can be used, but care must be taken that the point should be smooth and rounded, and even bulbous, to prevent accident. The tube of a medicine dropper with so small an opening that only a single drop will flow out at a time is still better. This tube should be sterilized by boiling each time it is used, imme-

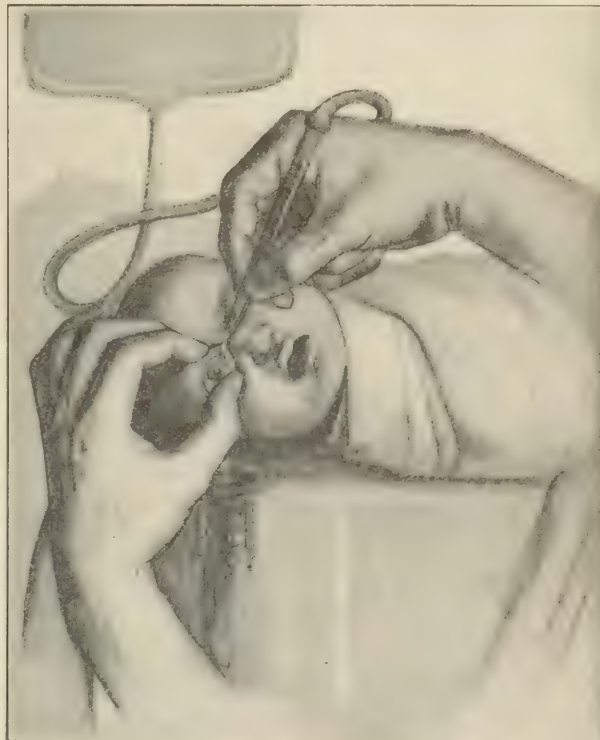


FIG. 12.—Irrigation of the eye by means of a medicine dropper attached to a fountain syringe (Edgar).

diately before and immediately after the treatment. After it is inserted into the outlet tube of the fountain syringe, the syringe itself must be hung so that its base will not be more than six inches above the eye. Under no circumstances must the height of the syringe be enough to cause a stream of water to flow from the delivery tube. The solution must merely trickle out from the tube, or, better still, must be delivered drop by drop. The greatest care must be exercised not to hit the cornea with a stream of water or to touch it with anything. In an eye with gonorrheal ophthalmia, a minute abrasion of the cornea, such as may be readily brought about by the least carelessness in the use of a glass syringe, may admit septic microorganisms and thus lead to loss of the eye. Another objection to the use of the syringe is the risk of fluid spurted into the nurse's eye—a casualty that has been reported in several instances. A still more serious objection lies in the fact that the flow of water may entirely wash away the delicate membrane of the

cornea and permanently destroy the eye by the very means that has been chosen to save it.

In Wray's modified syringe the glass nozzle is replaced by one constructed of soft rubber tubing. This simple device certainly renders the syringe less liable to abrade the cornea, but at the same time it does not insure against the danger of inoculating oneself by accidental spurts of matter.⁶

Nurses in outpatient departments, upon whom the routine duty of treating these cases seems usually to be cast, are fond of cleansing the eyes of ophthalmic babies with the glass bottles commonly called an *Undine*, invented by a Philadelphia pharmacist, named Llewellyn (*Ophthalmic Record*, 3, 1893, p. 434). If the use of this little appliance is sanctioned at all, the advisability of which I doubt, its nozzle should at all events be furnished with a short length of rubber tubing, in order to make it as safe as may be.⁷

A saturated solution of boric acid is the one to be preferred for irrigation purposes. A solution of one in 5,000 to one in 10,000 of corrosive sublimate is also advocated by some writers. Others have used a solution of one in 10,000 of permanganate of potassium or formaldehyde one in 6,000. Peroxide of hydrogen in some one of its various forms has its advocates, but this appears to be the least effective of all. Whatever solution is used, it should be warm and used with the greatest care.

Beside the irrigation, the use of iced compresses should be at once begun. In an ordinary dishpan a large block of ice should be placed. The top of this should be completely covered with pieces of lint two inches square or flattened pledgets of cotton which are more readily obtained. In regular routine a piece of lint is taken from the ice and placed on the baby's eye. At the end of a minute or two this is replaced by another and so on. This treatment requires unremitting care and at least two nurses are needed to treat the child. After each pledget has been used, it is, of course, itself infected with gonorrheal virus. For safety's sake, these are best placed in a convenient paper bag and when a number have accumulated, the entire bag and its contents can be readily burned.

It is sometimes possible to secure small ice bags which can be obtained from druggists and rubber manufacturers under the innocent name of "protectors for two fingers," or Condom's icebag. This is much easier than to place pieces of lint on a block of ice, but there is a considerable amount of risk in the use of too great a degree of cold or in the material weight of ice upon the eye. They should not be used except by the advice of a competent ophthalmologist. If an ulcer forms on the cornea, the compresses should be at once discontinued.

If there is any opacity of the cornea as shown by the appearance of marked spots on the front of the eye, the iris should be dilated with a solution of atropine sulphate (one in 200) dropped into the eye three or four times a day.

Ulcers should not be allowed to form. This requires the constant care of a capable oculist who should examine the eyes carefully, several times a

day if necessary. In order to be able to act in time, it is absolutely necessary to see the cornea every day. If the eyelids are very swollen and stiff it is with difficulty, indeed, that the eye can be opened. It may be impossible to expose the eye with the fingers alone. Under these circumstances the Desmarre retractor is excellent. Even better is the smaller retractor of the eyelids devised by Ingalls which has around the edge of the incurving border a series of minute openings through which boric acid from a fountain syringe can be allowed to flow, though, as noted above, the syringe must be hung very low and the fluid merely allowed to trickle through the tube. Even in trained hands the use of the retractor or any other instrument requires the utmost skill and care, otherwise mechanical abrasions of the eyelids occur, which add a new risk of infection and favor the progress of the disease.

Silver nitrate is the best remedy for checking the secretion. As a stronger caustic solution would endanger the vitality of the cornea, a two per cent. solution is usually

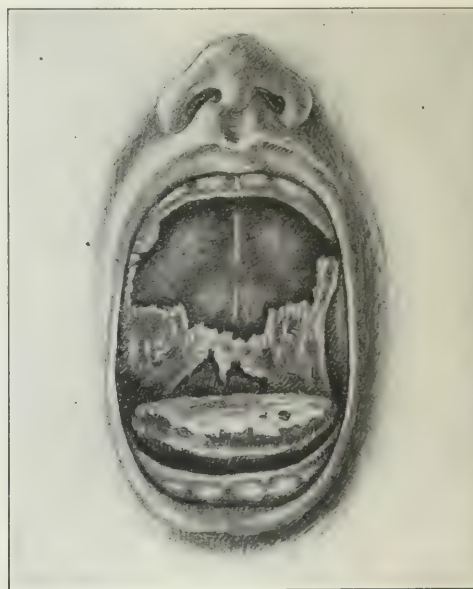


FIG. 13.—Gonorrhea of the mouth following ophthalmia neonatorum.

employed; but in neglected cases, in which the swelling of the conjunctiva is unusually great, it may be necessary to use the solid stick. The more active the purulent secretion the more frequent should be the applications; in adults two brushings a day may be needed; in fact, the nitrate should be applied as soon as the eschar has separated, and that, in turn, depends on the amount of discharge. The important point to be remembered in cauterizing the conjunctiva is that it must not be practised until there is a free discharge of pus; in other words, not before the second or gonorrheal stage. As long as the conjunctiva is tense and swollen and there are fibrinous deposits and discolored areas, cauterization is harmful.

When the silver nitrate is to be applied, the child is made to assume the position already described. Each lid, in infants and adults, is to be everted separately and thoroughly painted with the solution, but in such a way as to avoid contact with the cornea. The retrotarsal folds which are always the seat of greatest swelling, should receive special attention. After the desired eschar is formed, the excess of nitrate is to be washed away with water, or, if the mitigated stick has been used, with a saline solution, to prevent injury to the cornea. Protargol has lately been recommended for this purpose, but its efficacy still remains to be proved.

Ulceration of the cornea is not a contraindication to

⁶Sydney Stephenson, M.B., C.M., Ophthalmic Surgeon to Queen Charlotte's Hospital, London, *Ophthalmia Neonatorum*.

⁷Idem, *loc. citato*.

silver nitrate; on the contrary, it is then the only available remedy and must be applied with all the more thoroughness. The conjunctival sac should be carefully freed from adherent particles of secretion before silver nitrate is applied.

In adults it is advisable in severe cases to divide the outer canthus by a horizontal incision with scissors. It facilitates eversion of the lid, allows the conjunctival sac to be cleansed more readily, and relieves the pressure on the bulb which is so dangerous to the cornea.

When the violent infection has subsided milder astringent solutions, such as silver nitrate (one in 1,000), are required with the continuance of cleanliness as before.

More recently, and in a line with modern advances in serotherapy, the use of gonococcus bacterin and of gonorrheal phylacogen has been steadily gaining in favor. There is little doubt that in the near future each disease of bacterial origin will have its course limited or even entirely checked by the proper use of suitable antitoxins, vaccines, bacterins, or some similar antidote applicable to the organism in question. Recent laboratory experiments combined with clinical observations appear to prove that in various phases of gonorrheal infection a fairly satisfactory antidote of this type has been found and can be procured from several reliable manufacturers.

One great disadvantage in the use of the various silver salts lies in the fact that exposure to light tends to favor their more or less rapid decomposition and reduction to the form of silver oxide, which is not only inert medicinally, but is a mechanical irritant to the delicate organism of the eye. Argyrol in twenty to fifty per cent. solution, and protargol in ten to twenty per cent. solution are both proprietary compounds and must be procured directly or indirectly from their manufacturers. They have been extensively advertised, but even yet in the minds of many competent ophthalmologists there is a doubt as to their efficacy in this disease. The addition of a five per cent. solution of sophol, a preparation containing formaldehyde, nucleinic acid, and twenty-two per cent. of silver, is recommended as a means of preventing decomposition and change in the silver solutions just mentioned.

Nitrate of silver, however, is practically always available in the form of the lunar caustic stick or of the crystals of the salt itself. It is readily made up in any desired strength. It should be kept in bottles of blue or amber glass. It can now be procured in boxes containing one or two dozen small amber glass tubes, shaped like a medicine dropper, each tube hermetically sealed and containing ten drops of one or two per cent. solution. One end is readily broken; the other end is sealed with wax. A small rubber bulb comes in the box and is applied to the large end after its apex has been broken. A sterilized needle, which also comes in the box, is used to perforate the wax of the smaller end. Thus an absolutely fresh and uncontaminated solution of a known strength is quickly available, and, as the cost is small, a fresh tube can be used each day as required.

As a rule, the friends of the child have no idea of the nature of the disease or of its gravity. The wise old women so frequently in attendance ascribe it to a cold and their favorite remedy is to wash

the eyes with the mother's milk. This practice in itself often adds to the infection by furnishing other bacteria in addition to the gonococci. It seems probable, in view of recent bacteriological study, that a number of pus-producing microorganisms may give rise to ophthalmia of a severe type. In addition to this, the gonorrheal virus may be introduced into neighboring organs, and gonorrhea of the nose, mouth, and even of the ears, may develop (Fig. 13). If the physician does not see the child after its birth, he should leave strict orders to send for him immediately if its eyes become inflamed.

THE NEW YORK INSTITUTION FOR THE BLIND.

It remains to consider what has been done in our own city in the past decade for the prevention of this disease which is truly a national calamity. The *Report* of the New York Institution for the Blind for 1899 showed a reduction in the number of blind children entering that institution compared with the reports of the previous thirteen years. Instead of the classes increasing in size with the growth of the city they have actually grown smaller, an actual reduction of forty-seven during the years mentioned. To quote from this report:

This decrease for the last thirteen years is really more considerable than it appears, when we take into consideration the growth of city population within the period covered by these figures. If reckoned as percentages, the decrease would fitly emphasize the great gain in this matter of blindness which has been the result of better sanitary and medical supervision.

When this reform was first undertaken, some twelve years ago, a great many cases of blindness were chargeable to our custodial institutions, where the use by the inmates of the roller towel and common wash basins did a great deal to propagate eye troubles of every kind. This mistaken method has been done away with, and the good results of that change, reinforced by periodical medical inspection, have been most marked.

Here in New York city we have a dense population, where one might expect to find the proportion of eye troubles much greater than in the country districts. But, thanks to better sanitation and to timely aid furnished by our numerous dispensaries, the figures are vastly more favorable than those of the rural districts. A careful study of the figures of the last Federal census shows that in the counties of New York and Kings, the number of blind persons is one to every 2,500 of population, while in the five rural counties of Alleghany, Clinton, Oswego, Madison, and Schuyler, there is one blind person for each 650 of population.

These figures should not be quite so unfavorable to our northern counties, inasmuch as the infantile mortality is much larger in greater New York in the class from which most cases of ophthalmia blindness are begotten than it is with them. But aside from this matter of comparison, the showing is most important, most inspiring, and a weighty compliment to the character of the charity work of the last dozen years. The greater part of this improvement is due to the prevention of ophthalmia neonatorum, and is therefore to be accredited to the good work of obstetricians. About one in three of all cases of blindness is the ratio of those due to ophthalmia neonatorum. Vaginal irrigation, prompt cleansing of the newborn's eyes, the use of nitrate of silver, and more careful and thorough nursing of inflamed eyes through the improved facilities of both hospital and dispensary service, account for this glorious decrease in blindness. The greater number of cases of ophthalmia resulting in blindness are gonorrheal, and by far the most of these (in infants) escape blindness if well attended. We predict, as the result of systematic institutional attendance of trained medical men upon very poor women in confinement, now taking the place of the decadent midwife, a much more remarkable improvement than that already achieved.

This excellent summary of the work accomplished during the fifteen years which followed the discoveries of Neisser and Credé has formed the basis upon which more recent progress has been built. It is evident that our knowledge at the present time of the cause of blindness of the newborn will not restore the sight to the thousands of unfortunates still in early adult life who were born before these discoveries had been made. It is evident, moreover, that the best procedure for the prevention of blindness in the future lies not so much in plans of treatment which may be devised, as in a widespread and general knowledge that blindness occurring in an infant is in nearly every instance the direct result of an attack of gonorrhea which the father had contracted before his marriage, and which in many instances he honestly believed had been cured. True prophylaxis, therefore, must be applied not merely in the prevention of blindness of the newborn child by the methods just described, but also by every method which can be devised to prevent the occurrence of gonorrhea in adults of both sexes. Definite and accurate knowledge is the weapon which will be most efficacious in this phase of our work. As our general knowledge of the subject has increased, many agencies have been created to give the facts involved the widest publicity. As an illustration of these agencies, our own society, the New York city department of health and the Committee on the Prevention of Blindness of the New York Association for the Blind, are worthy of special mention.

THE AMERICAN SOCIETY OF SANITARY AND MORAL PROPHYLAXIS.

This society was the first national body to inaugurate work in this direction. This pioneer work of Dr. Prince A. Morrow is now being carried on by forty different State societies and by innumerable local organizations. As an example of some of the methods used, the following circulars in the form of charts were prepared and exhibited at the International Congress of Hygiene, held in Washington in 1912. They shared with the other features of the section in sex hygiene in attracting general attention and favorable comment:

GONOCOCCUS DISEASE AND CHILD BLINDNESS.

In the conception of the laity, blindness at birth is regarded as an unavoidable misfortune—a dispensation of Providence. The public should know that it is the fateful expression of ignorance and criminal carelessness—the working of that relentless law of nature, which visits the sins of the father upon the children.

It is utterly unthinkable that a man would knowingly and wilfully communicate an infection to his wife, which destroys the sight of his own child. The only possible explanation of this strange and unnatural crime against one's own flesh and blood is ignorance in most cases on the part of the man that is the bearer of contagion, and especially with respect to its terrible consequence upon his wife and children.

COMPLICATIONS AND SEQUELÆ OF GONOCOCCUS DISEASE.

In the child the great majority of cases of infantile blindness are due to infection of the eyes either from its own gonorrheal pus, or from another individual. The percentage of cases of ophthalmia neonatorum due to gonorrhea of the parent varies with different authorities, from twenty to ninety per cent.

GONOCOCCUS DISEASE AND BLINDNESS.

Man is the only animal that subjects his reproductive system to infections that maim or destroy his offspring. The children of men are the only beings whose eyes are subjected to a veritable baptism of virulence the moment they open to the light of the world.

Stephenson, the recognized highest authority of the subject, says: "The serious causes of ophthalmia, that is, such as imperil the sight, are almost invariably due to the specific microbe of gonorrhea."

The only effective measure for the eradication of blindness of the newborn is to safeguard and prevent the processes of childbirth from the germ which causes blindness.

The recommendation deemed necessary by the medical profession that every child should receive an instillation of silver nitrate at birth is the most terrible indictment ever brought against humanity, as it is based upon the assumption that every woman who bears a child is the possible bearer of gonococcus infection.

GONOCOCCUS DISEASE AND SYPHILIS.

To the popular mind gonorrhea is of minor importance compared with syphilis; but to the pathologist the evidence is strongly in favor of placing gonorrheal disease first on the list; not only of venereal diseases, but alongside of the other far reaching infections that are menacing the human race, viz., tuberculosis and cancer.

We must all be aware of the frequency of the gonorrheal infection and of the persistency with which it resists treatment.

That gonococcal infection is accountable for a large part of the invalidism and sterility in the female there can be no doubt.

The general practitioner probably gets unsatisfactory results oftener in his treatment of gonorrhea than any other common disease he meets with.

The treatment of gonorrhea is unsatisfactory whether it be in the female or male.

DEPARTMENT OF HEALTH OF THE CITY OF NEW YORK.

The Certificate of Birth now used by the New York State Department of Health contains the following questions:

What preventions of ophthalmia neonatorum did you use?

If none, state the reason therefor.

It is regrettable that the New York city department of health does not deem it expedient to include this question on the birth certificate used in New York city. The greatest value in the inclusion of this question lies in its educational effect. Many accoucheurs who might thoughtlessly omit the use of a prophylactic as a routine, would, by having their attention called to the matter by the question on the birth certificate, give the desired attention to the infant's eyes, and doubtless many lives would be saved from darkness as a result.

Since 1903, suppurative conjunctivitis is included in the list of infectious diseases which physicians are obliged to report to the Department of Health of the City of New York. This requirement has been supplemented by the following regulation,

adopted June 3, 1913, which requires midwives also to report such cases.

22A. When a child delivered has or develops sore eyes, or any redness or discharge from the eyes, the midwife in attendance must at once report to the department of health the name and address of the mother and state the time when such condition of the eyes was first noticed.

The *Weekly Bulletin* which the Department of Health sends to all physicians in the city since Doctor Goldwater became the commissioner of health, has well emphasized the importance of the disease which we are now considering in its issue for January 16, 1915. It states:

Since the control of midwives of the city was placed under the department of health, in 1907, definite efforts have been made to control the occurrence of ophthalmia neonatorum in the practice of midwives, as well as to continue the recording of similar cases reported by physicians and institutions. From time to time notices have been sent to the institutions of the city, calling their attention to the sections of the sanitary code which require the reporting of these cases:

Sec. 140. It shall be the duty of the physician or physicians and of the officers and managers of every hospital or dispensary to cause a report to be immediately made to the Department of Health of the City of New York of every person afflicted with any one of the infectious diseases herein specified who comes to their knowledge, . . . and shall also immediately report or cause to be reported to the said department the name, age (so far as can be ascertained), and residence of every person received or treated thereat, who is afflicted with puerperal septicemia or suppurative conjunctivitis, and the name of the particular disease with which the person is so afflicted, and shall also report the name and address of the physician or midwife in attendance at the time of the onset of the disease, which information it is hereby made the duty of such hospital or dispensary to obtain and record among its records.

The cases occurring among midwives are generally reported promptly as required by the department's regulations:

Rule 22. As soon as the child is born, and if possible before the expulsion of the afterbirth, the eyes should be washed with boric acid solution. The eyelids must then be separated and one or two drops of a one per cent. (1%) solution of silver nitrate dropped in the eye and the lids brought together. (The silver nitrate solution will be furnished by the department of health.)

Rule 22a. When a child delivered has or develops sore eyes or any redness, inflammation, or discharge from the eyes, the midwife in attendance must at once report to the department of health the name and address of the mother and state the time when such condition of the eyes was first noticed.

The enforcement of these rules has resulted in the almost universal use of the prophylactic solution by the midwives of this city. During the past five years the number of reported cases of ophthalmia neonatorum has been as follows:

	1910	1911	1912	1913	1914
By midwives	14	6	44	29	11
Institutions .....	..	11	60	11	1
Physicians	4	13	9	6	14
Others .....	..	4	3	3	..
	18	34	116	49	26

From unofficial reports received from physicians and others who have had an opportunity of determining conditions in institutions for eye diseases and in maternity hospitals, it is quite evident that the department has not been receiving full reports of these cases from such institutions; and from its own investigations the department is convinced that many physicians of the city also are not reporting their cases of this disease. On the other hand, the department finds that the reporting of these cases by midwives is generally observed.

When a case is reported by a physician or by an institution, a letter of inquiry is sent to the physician or institution for the purpose of obtaining data regarding the care and progress of the case. In no instance of this nature is a personal visit made by a department employee upon the mother or the child.

In all cases reported by midwives, however, an ophthalmologist of the department visits the case at once, determines the diagnosis, both clinically and by means of a culture, and instructs the mother as to the necessity of obtaining treatment. Each such case is followed up immediately by a nurse, who sees that the child is placed under appropriate care, either by a private physician, if the family is able to pay, or by a hospital. The nurse keeps the case under observation until it is terminated.

We desire to call the attention of institution authorities

and private physicians of the city to the above regulations. Hereafter all violations coming to the attention of the department will be vigorously prosecuted.

THE NEW YORK STATE COMMITTEE FOR THE PREVENTION OF BLINDNESS.

The New York State Association for the Blind was organized in 1905. In 1909, its Committee on Prevention of Blindness, so ably represented at our present meeting by Miss Carolyn C. Van Blarcom, the executive secretary, published its first annual report. The reports of this committee are worthy of widespread publicity. Its report in 1911 on ophthalmia neonatorum was as follows:

Chiefly with the idea of learning how far local health officers are able to provide immediate and adequate medical care for cases of ophthalmia neonatorum reported to them, the committee during the past year has made a study of hospital facilities throughout the State for the reception of infants suffering from this disease. The results of this study indicated the need of further provision for such care, although to how great an extent such provision is necessary it was not possible to determine, since the desired information was obtainable from only one third of the hospitals addressed on this subject. It is hoped that a more thorough investigation may be made through the health officers themselves, not only to determine in what localities hospital provision for cases of ophthalmia neonatorum is lacking, but also for the purpose of taking such measures, in cooperation with the health officers of these localities, as may lead to adequate hospital provision for all cases of ophthalmia neonatorum.

As in previous years figures have been collected in regard to the relative number of pupils blind from ophthalmia neonatorum in schools for the blind throughout the country. It was found that of 2,018 pupils in seventeen schools, 521, or approximately twenty-five per cent., of the total number of students, were blind as a result of this one disease. Information from fifteen of these schools showed that the proportion of pupils blind from ophthalmia neonatorum, admitted for the first time in 1910, remained approximately twenty-five per cent., as in preceding years.

Desiring also to learn the extent to which ophthalmia neonatorum occurs in New York city, and how thoroughly it is controlled, the committee, in cooperation with the New York city department of health, has made a local study of this disease. Investigations of cases of ophthalmia neonatorum treated in five eye hospitals and dispensaries in New York city indicate that the disease occurs much more frequently than is generally believed, and that the law requiring that redness and swelling of the eyes of the newborn occurring within two weeks after birth shall be reported to the local health officer, is not generally obeyed.

It is to be hoped that ultimately, through the investigation and prosecution of gross cases of neglect, with attendant publicity, every case of ophthalmia neonatorum will be reported to the department of health, and that each will be immediately followed up by a competent nurse, as in Boston, where such a system has been worked out with admirable results. In that city, as a result of publicity given to conviction for neglect, the number of cases of ophthalmia neonatorum reported has risen from ten in the month before the first conviction occurred to one hundred and sixty, eight months later, and since the institution of the follow up system, whereby a nurse in the employment of the Boston department of health visits every reported case and secures proper treatment for the child, not a single known case of the disease has resulted in blindness.

In regard to the number of cases of blindness resulting from ophthalmia neonatorum which have occurred in New York city, it was not possible to secure information which could be regarded as a true index to the situation. In response to a request from the city department of health in this connection, letters were sent to all institutions for the blind in the city, asking the number of pupils or inmates under five years of age blind from ophthalmia neonatorum, who had been born in New York city. As there are but few blind children admitted under five years of age to educational institutions, it was felt that the results of this investigation were without value. The dis-

covery of seven cases of needless blindness from this disease, outside of such institutions, sufficiently indicated the gravity of the need for further investigation and preventive work.

In 1912, the following report was presented:

The committee has continued its study of preventable blindness in infants, comprising an investigation of the number of pupils blind from babies' sore eyes, or ophthalmia neonatorum, in the schools for the blind throughout the country, and a study of cases of ophthalmia neonatorum in New York city.

The information obtained from schools for the blind in twenty-six States showed that, in 1911, 576 children, or twenty-three per cent., of the total number of pupils in these schools, were needlessly blind as a result of ophthalmia neonatorum, the proportion being 2.2 per cent. less than that of the preceding year. Of the two schools for the blind in New York State, figures were received from only one, the school at Batavia, which receives pupils from all localities in the State outside of greater New York (thus covering about half the population). In the year 1911-12, out of 162 pupils in this school, thirty-nine were blind from ophthalmia neonatorum. Five of these children had been admitted to the school during the year, this number being one less than for the preceding year.

In this connection it should be noted, lest false inferences be drawn, that the figures showing the annual admissions of cases of ophthalmia neonatorum to the State School at Batavia, N. Y., and to the New York Institution for the Blind, have no value when considering the effects of efforts recently made in this State for the suppression of ophthalmia neonatorum. Children are not admitted to either of these schools for the blind until they are eight years of age; whereas it is four years only since the active measures adopted by the State and city boards of health and this committee (the free distribution of a prophylactic, the early notification of births, and the classification of the disease as infectious) have been in force. By 1916 the admission to these schools should begin to show results, supposing the age limit remain the same.⁸

That there are many cases of loss of one eye, or partial blindness, from ophthalmia neonatorum, which are not to be found in any institution, is evident from an investigation which this committee has been able to make of one hundred cases of this disease occurring in New York city during the past year. Out of ten cases in which injury resulted, six lost one eye, the sight of two patients was affected, and two lost both eyes.

Seventeen midwives and nine physicians seem to have been guilty of gross neglect in the care of their patients; either failing to give treatment or administering it too late, in the case of physicians; and, on the part of midwives, failing to procure medical assistance until several days after the inflammation appeared, or not at all. Only one case of injury, in which the sight was affected, actually resulted from a midwife's neglect—medical attention having been secured, generally by the alarmed mother, in time to save the sight of the infants under the care of the other sixteen incompetent midwives. Harm resulted in every one of the cases attended by the nine incompetent physicians.

In two cases, where physicians undertook the actual care of their patients themselves (the first prescribing boric acid for the baby's sore eyes for a week), one eye was lost in the one case, and both eyes in the other. From the history of these cases, and other cases where physicians have (and needlessly say, without success), simply prescribed treatment, leaving the actual care in the mother's hands, the conclusion is unavoidable that general practitioners in the poorer districts, who do not have nurses to assist them, are not able to give the constant care which this disease requires. Therefore, the more skillful care of cases, either by an oculist from the very start of the inflammation, or in a hospital, should be advocated if this disease is to be effectively controlled. Or, if all cases of ophthalmia neonatorum were reported to the department of health, as required by law, and an inspector or nurse were employed to visit such cases immediately, prompt and skillful treatment might be secured in every instance, and blindness from ophthalmia neonatorum might be entirely wiped out.

⁸This statement refers solely to the statistics of these two schools; otherwise, it is believed that, owing to the educational work which is done by this committee and other organizations, ophthalmia neonatorum is already diminishing in the community at large.

There were only thirty-six cases of "babies' sore eyes" reported to the department of health during 1911, while as many as one hundred and twenty-six were taken to eye hospitals for treatment. The department, in its *Bulletin* for November, 1911, states that it will enforce in the future, more strictly than in the past, the provision of the sanitary code, which requires physicians and institutions, as well as midwives, to report all cases of ophthalmia neonatorum coming under their observations.

Its last published report in 1913 states:

Investigation.—Figures recently collected by the committee from schools for the blind throughout the country show that out of a total of 2,327 pupils in twenty-one schools, 684, or 29.3 per cent. of the pupils are needlessly blind from ophthalmia neonatorum; eighty-eight of the 386 children, or 22.7 per cent. of those admitted for the first time during the last school year, are blind from ophthalmia neonatorum, thus showing that the percentage of needless blindness from this cause in schools for the blind continues about the same this year as for preceding years:

1912, 88 out of 386 new admissions, 22.7% blind from O. N.
1911, 88 out of 415 new admissions, 21.2% blind from O. N.
1910, 84 out of 351 new admissions, 23.9% blind from O. N.

It was found upon investigation of 108 cases of ophthalmia neonatorum reported from the various eye clinics in New York city to this committee that sixty-two were attended by physicians, forty-three by midwives, and three were emergency cases attended by neighbors. In forty-eight of the sixty-two cases attended by physicians there was no prophylactic used at birth, nor in thirty-two of the forty-three midwives' cases. Of eleven cases in which injury resulted, six babies lost one eye, two eyes were scarred, while three infants became totally blind. The cases of total blindness all occurred in the practice of physicians, while of the remaining eight, six were physicians' cases and two were midwives'.

The value of educational work in this connection is suggested by the fact that sixty-eight, or more than half, of the 108 cases investigated were taken to eye hospitals upon the initiative of lay persons who had heard that it was dangerous to neglect babies' sore eyes.

Legislation.—The committee has supported the State Commissioner of Health in his successful application for a renewal of the grant in the supply bill of 1913, to make possible the free distribution of prophylactic outfits for the prevention of blindness from ophthalmia neonatorum. This appropriation, which was diminished to \$2,500 in the previous year, was increased to \$5,000 in 1913.

The committee has assisted in the preparation of a model law for the prevention of blindness from ophthalmia neonatorum which was drafted by the Committee on Prevention of Blindness of the American Medical Association, for possible adoption of the various States of this country.

Data and information in regard to existing laws affecting the control of ophthalmia neonatorum in this and other States have been given to workers in Oklahoma, Kansas, Idaho, Oregon, Iowa, and in the States above mentioned. This legislation in some instances was contemplated as a result of interest aroused by the statistical reports showing the prevalence of blindness from ophthalmia neonatorum throughout the country, which this committee issues each year and sends to superintendents of schools for the blind and to others interested in the blind and in the prevention of blindness.

The following excellent report by Miss Carolyn Van Blarcom, executive secretary of the Committee for the Prevention of Blindness, was incorporated in the discussion of a paper on Recent Progress in Ophthalmology, read at the annual meeting of the Medical Society of the State of New York, April 28, 1914:

Ophthalmia neonatorum.—In regard to ophthalmia neonatorum, I, as a lay worker, can only tell you, as doctors, what we are trying very hard to accomplish in popularizing and spreading medical knowledge concerning the disease.

We all know that ophthalmia neonatorum is not really very common—about one case out of every 200 births—

and that the cases of blindness from this cause are still less frequent. But each case is so pathetic and is so nearly always the result of sheer carelessness and neglect that even the small number occurring annually in the city and State of New York are a reproach to society.

Much the same conditions are disclosed by other investigations, not only in New York, but elsewhere. There is no dearth of knowledge concerning the etiology, prevention, and treatment of ophthalmia, and yet these cases continue to occur. It is now several years since the popular movement for the prevention of blindness was started, and yet the reports from schools for the blind throughout the country show no diminution in the number of children blind from ophthalmia neonatorum admitted annually to these institutions. Year after year the percentage is about twenty-five per cent. Nor do the reports from eye hospitals bear out the belief of some individuals that ophthalmia neonatorum has been practically wiped out. During the last fiscal year ninety-six cases were treated in New York city eye hospitals and clinics, and it is quite certain that there were many unrecognized, untreated cases in addition.

Probably the most determined and effective work which is being done in this country to save the sight of infants with infected eyes, is being done by the Social Service Department of the Massachusetts Eye and Ear Infirmary, in Boston, and yet the following figures, taken from their sixth annual report, show a surprising number of cases and a large percentage of resultant injury during the past year. There were 142 cases under observation and of these twenty-three were made blind or partially blind. This rather looks as though the underlying cause has not been reached even in Boston. All but ten of the 142 cases reported upon were cared for by physicians or in hospitals. In this instance, as in others, which might be cited, it is the doctors who have been at fault and not midwives or nurses.

The inevitable conclusion reached is that not all is being done that might be accomplished in view of the amount of available information. Possibly knowledge upon this is not as thoroughly disseminated as it might be by the medical schools, for it is the doctors at large who have it in their hands to prevent blindness from ophthalmia neonatorum, and yet it is the doctors at large who seem to be generally responsible for this preventable disaster.

It goes without saying that the members of this audience are not the delinquents. They are the sight savers. But the army of general practitioners who casually handle obstetrical cases and particularly the young, not highly trained and not overscrupulous practitioner who recruits his patients from among the very poor, are the ones, who through ignorance or neglect, or both, swell the army of the blind year by year. It is to correct this that we, lay workers, look to you, the teachers and leaders in the medical profession.

To sum up, it is evident that if we are to prevent needless blindness among babies we must secure, first, the invariable use of a prophylaxis at birth; second, the recognition of the early symptoms; and, third, provision for both prompt and efficient medical care for ophthalmia neonatorum cases. It would seem that this should go back to the teaching in the medical schools, for no amount of legislation or education of public opinion can help the individual baby if the attending physician is negligent.

These are all active agencies and there are many similar ones in operation. All are working toward a common goal and all have made important advances in the battle against this particular disease.

If accurate knowledge can be generally disseminated, and the lay public become active allies of all progressive physicians, there is little doubt that in another decade ophthalmia neonatorum will be as relatively infrequent as thrush, typhoid fever, yellow fever, and smallpox in countries like the Canal Zone, where military efficiency is combined with professional skill to secure the common weal of all the inhabitants.⁹

150 WEST FORTY-SEVENTH STREET.

TREATMENT OF PAPILLOMA OF THE URINARY BLADDER.*

By Means of High Frequency or Oudin Current.

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AND CHARLES WATTERSTON, M. D.,

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Edwin Beer introduced the use of high frequency, or Oudin current, in treating papilloma of the urinary bladder and in the *Journal A.M.A.* for November 16, 1912, he reported 200 cases favorably, and in some instances enthusiastically. Since that time the Oudin high frequency current, or destructive fulguration, has been the method of selection in the treatment of these growths.

The Oudin high frequency current is derived from a coil, and the effect produced upon the tissue is known as destructive fulguration, in contradistinction to fulguration of de Keating-Hart, which is non-destructive. Dr. William Clark, of Philadelphia, described a method of treatment by desiccation. The current used was static and was derived from a plate machine.

The high frequency current of Oudin is most extensively used for the following reasons: First, destructive fulguration brings about a rapid disappearance of the growth in a majority of cases; second, the current is more easily obtained and controlled. The apparatus consists of a cystoscope, of the operating or catheterizing type and a high frequency machine, which, if direct current is used, must be fitted with a rotary converter or motor generator. A special cystoscopic table, while of the greatest advantage, is not an absolute necessity.

There are three cystoscopes suitable for this work: First, the operating or Garceau, with its large opening for instruments permitting the use of a special electrode which is highly insulated; second, the double catheterizing cystoscope carrying two wires, giving the advantage of a second wire in the event that one becomes defective; third, the single catheterizing cystoscope, 18 French, carrying one wire. This cystoscope with us has proved of the greatest value; it is smaller than the two above mentioned, produces less trauma, and its field of usefulness is equally large in this work. We have used this instrument frequently, the patient not complaining of the slightest pain and there being no aftereffect from trauma.

Papillomata of the bladder present as sessile or pedunculated tumors with or without villi, the usual site being near the ureter. Beginning as a single growth, the tendency is to become multiple, especially if irritated in any way. A large villous growth will frequently cover numerous smaller growths which are evidently implanted from particles of the primary tumor. Following cutting operations these growths may appear in any part of the wound.

Pathologically, a papilloma is composed of a branching connective tissue centre, with a fine network of vessels, every part being covered by an epithelial layer. The most common symptom of papilloma is painless hematuria, occurring as it does in

⁹A complete bibliography will appear in the reprints of this communication.

*Read before the Medical Association of the State of Alabama, April 20, 1915.

a majority of cases and causing a marked reduction in hemoglobin, going as low as twenty-five per cent. in some instances. Long standing tumors may cause an interruption in the flow of urine, due to a pedunculated tumor or long villi being forced into the urethral orifice. It is sometimes noted that a patient will urinate freely only when lying down; this is due to the site and character of the tumor. We treated one case in a man of thirty-five years who urinated freely when lying on his right side. Examination revealed a villous papilloma situated just below the ureter on the left side, the villi floating down and filling the urethral orifice when the patient stood erect.

An absolute diagnosis is made only with the aid of the cystoscope, the growth appearing as a sessile, pedunculated, or villous tumor, situated usually near the ureter. If multiple, the smaller growths may appear in any part of the bladder, but the rule is that they are distributed around the primary tumor.

The cystoscope being introduced, we should wash the bladder well so as to have a clear field. In some cases there is considerable hemorrhage, which interferes with carrying out the work of examination and fulguration in a rapid and efficient manner. At times the hemorrhage is profuse, and continuous irrigation or a preliminary course of treatment is necessary to overcome it. We find that silver nitrate gives good results, and it is our practice in troublesome hemorrhage to wash the bladder with a solution of one part in two to ten thousand. For the purpose of distending the bladder during cystoscopic examination, sterile water or a solution of boric acid is used.

After the tumor is located it is well to remove a small section for examination, no one being able to tell positively the exact nature of a tumor without the aid of a pathologist. In removing a specimen for section, we use a Buerger rongeur forceps through a Garceau cystoscope or a Young rongeur cystoscope. With one of these instruments it is a simple matter to obtain a piece large enough for diagnostic purposes. The electrode is then brought in direct contact with the surface of the tumor, unless a pedicle can be made out, in which case we should attack the pedicle directly in an effort to cut through it, thus freeing the tumor at one sitting. Upon the current being turned on, gas bubbles are seen to rise from the point of contact; this is followed by blanching. The current is allowed to pass through the tumor for fifteen or thirty seconds. The application should be painless, and care must be taken if there is pain, for we are then encroaching upon the healthy bladder wall. However, we have never seen serious results follow this accident. After the principal growth is attended to, the smaller ones should be attacked and treated in like manner. In this particular the cystoscope is far superior to the open operation, for it is not practicable to treat numerous small growths by the open method. The tumor should again be examined in from seven to ten days, when it is seen to have diminished in size and to have changed from a bright red to a paler hue. The treatment is again applied and the patient instructed to return in from seven to ten days for further treatment.

It is impossible to say how many applications will be necessary; some papillomata disappear after two

or three treatments, while others require a great many more. The following case reports taken from our records will illustrate the average case:

CASE I. G. W. S., aged fifty-nine years, farmer, referred by Dr. M. E. Moreland. Principal symptoms, continual desire to urinate with straining and hematuria. Cystoscopic examination revealed a large villous tumor at base of bladder surrounded by smaller tumors. Section made from large growth and found to be benign papilloma. Fulguration, September 17, 1914. Between September 17th and October 25th he received five treatments, when the growth was seen to have entirely disappeared.

Two interesting features in connection with this case were an interruption in the flow of urine and the fact that on September 17th the patient had twenty-two ounces of residual urine. The bladder was very large, owing to the retained urine.

CASE II. A. C., white, aged forty years, salesman, referred by Dr. B. L. Wyman. Patient was sent to the office because of painless hematuria. Cystoscopic examination on October 1, 1914, showed two papillomata about the size of marbles, situated below and to the left of the left ureter, with smaller growths at base of trigone. Specimen removed for section. Fulguration, October 1st, followed by three treatments at intervals of seven or ten days. Examination, two months later, showed a normal bladder.

Papillomata have a tendency to recur, and the bladder should be carefully inspected at intervals of six weeks to two months over a period of one year for recurrence. It would seem from a careful examination of the literature and from our experience, that the following mode of treatment should be adopted:

1. All papillomata should be treated primarily with the high frequency current in view of the high percentage of recurrences following open operations—fifty per cent.—and the high mortality—ten per cent.

2. They should be watched for recurrence over a period of one year.

3. A specimen should be examined in every case by a pathologist and, if found malignant, the tumor should be treated accordingly, for up to the present time fulguration has not proved effective in malignancy.

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Treatment of Trypanosomiasis.—J. Danysz, in *Paris médical* for January 2, 1915, describes a new chemical combination of dioxydiamidoarsenobenzol with silver, bromine, and antimony, which is asserted to possess great value in the treatment of sleeping sickness. The therapeutic action of the arsenical compound in this disease is enhanced by its combination with the other elements mentioned, while its caustic effect on the tissues is, on the contrary, reduced.

GENERAL ANESTHETICS.

*With Special Reference to Anociassociation
(Crile).*

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Lebanon Hospital.

The state induced by the administration of inhalation anesthetics is designated by the usually accepted phrase, general anesthesia, anesthesia, or narcosis, each signifying unconsciousness with general loss of sensation including, of course, loss of pain sense. The chief anesthetic agents of the inhalation group, which, in the hands of anesthetizers, have fulfilled the foregoing requirements are: Nitrous oxide; 2, ether; 3, chloroform; 4, ethyl chloride; 5, combinations of these one with another and with oxygen.

I fully believe that the time is very near when we shall rely on nitrous oxide in combination with ether and oxygen and aided by the anociassociation of Crile, as the selected anesthetic for all major operations. We have in this group a combination of anesthetics which eliminates all unpleasantness, which produces sleep quickly and quietly, which can be given for an indefinite length of time, and as the operation continues, can be easily regulated as to the amount of nitrous oxide, ether or oxygen, increasing or decreasing each as occasion arises. Finally, with the assistance of the anociassociation of Crile we have shock reduced to a minimum, and the amount of anesthetic reduced to an appreciable extent.

While I am fully convinced that this method of anesthesia is by far the best, there are several factors which have kept, and will keep it down for some time to come; the first is the bulkiness of the outfit, and the second is the cost of the nitrous oxide and oxygen. If we could eliminate these two factors, the method would undoubtedly replace ether in almost every instance. Owing to the second reason, I am sorry to state that my experience with this method has been limited. Nevertheless I am convinced even with this limited number of cases against the large number of cases I have anesthetized with ether, that this combination is far superior in every respect to the straight ether method, no matter how skillfully given. Of course this method is more or less complicated, and I should not advise any one to attempt it unless he is skilled in the use of the simpler anesthetics.

Just a passing remark in regard to chloroform. My experience with this drug, while of a limited character, has been very satisfactory, but its use is always fraught with danger. I do not feel as much at home with this drug as with other anesthetics. I should not advise its use except in the hands of one who is thoroughly conversant with anesthetics, for the greatest number of accidents have occurred in the hands of the inexperienced and when it was given to save time.

Ethyl chloride given preliminary to ether is little used today, as it is considered dangerous by the majority of men.

Ether in conjunction with the anociassociation of Crile, I will make the basis of my paper for several reasons: First, because it is the anesthetic most

commonly used; second, because it is the safest anesthetic, not only in the hands of the expert, but in the hands of the inexperienced; third, it throws out signals before the danger really occurs; fourth, it is an anesthetic with which no economic problems arise.

I have administered this drug in over 3,000 cases, without a death during its administration, or which could be attributed to the anesthetic. The nearest approach to any serious trouble was in two cases of pleurisy, both in young women, and one case of urinary suppression, which lasted about twenty-four hours, also in a young woman. Sixty per cent. of my patients had no postoperative vomiting, twenty-five per cent. vomited once, the remaining fifteen per cent. vomited two and three times. Of the fifteen per cent. of patients who vomited two and three times, ninety per cent. were emergency cases and were not in the hospital the usual twenty-four to forty-eight hours before operation. About two months ago I had a series of cases which showed, about twenty-four hours after the ether was given, marked conjunctivitis of both eyes. Out of five cases which I anesthetized in one day, four showed this condition. Another peculiar thing which occurred in conjunction with the foregoing was that I was unable to carry my patients to complete surgical anesthesia; I could get them only to a point near it, but no further, regardless of how much ether I used. It was found upon chemical analysis that my lot of ether was not up to standard. Recalling the fact that I had the same trouble several years ago with this same make of ether, I asked the hospital for a different brand. I have had no such trouble since. I mention this circumstance for the reason that we should have our ether analyzed from time to time, regardless of whose make it is.

The method which I use may be called a combination of the open and closed methods; during the administration I give small amounts of oxygen at various times, and at the close of the operation. This method is not new, but I will tell of the success I have had in the elimination of nearly all the disagreeable features which are generally associated with the administration of ether.

The very first thing I do is to get acquainted with my patient, and if I am able to do this, the first part of the procedure is half over, especially with patients who have taken an anesthetic before, and tell you to be sure and not choke or suffocate them, and that they had an awful time the last time they were anesthetized. These patients you must assure that you are going to give the anesthetic very slowly and that they will not experience any sensations of choking or suffocation. It matters not to me if the patient has a serious cardiac lesion, or whether he has albumin and casts in the urine, or whether he is suffering from some form of respiratory trouble; these matters should be settled by the surgeon when he is forming his opinion whether to operate or not to operate. If the surgeon decides that his patient needs to be operated on, it is up to the anesthetist to give his anesthetic to the best of his ability. When I sit down to anesthetize a patient, he is treated as if he was suffering from the worst form of cardiac disease, from the most troublesome form of respiratory trouble, and as if he was in the last stages of Bright's disease. By these

statements I mean that I use the same care and the same precautions with every case, regardless of whether or not the patient is considered to be in the best of health or on the brink of the grave. We should all use this plan, for the simple reason that regardless of how careful we may be and regardless of the skill used in the administration of the anesthetic, every now and then we meet with difficulties which were unforeseen before the anesthetic was given; and again one patient will take very little ether to produce surgical anesthesia while the next will require a much greater quantity, and it is impossible to determine this fact beforehand.

As regards the quantity of ether in a given case, you will find in various textbooks the statement made that to a certain number of pounds of the body weight so much ether should be used, and in other books that you should use just so much ether in so much time. I have studied this phase of the question very carefully, and have come to the conclusion that it is impossible to measure the amount of ether to be used by time or bodily weight. You should use just enough ether to carry your patient through a successful primary and secondary stage, and keep him in the proper third stage, using as much ether as necessary to accomplish this regardless of the amount, increasing and decreasing drop by drop, according to the state of anesthesia, never letting your patient come out or allowing him to go too far under. If you keep the patient in this state, you need not worry that you are giving your patient too much or too little ether.

In regard to the administration, I start off with a few drops of a fifty per cent. solution of menthol in alcohol. This will eliminate some of the unpleasantness of the odor and also act as a soothing agent to the mucous membrane of the respiratory organs. I then give my ether drop by drop on a single layer of gauze, very slowly and giving plenty of room on top for the admittance of air. I gradually increase the number of drops and add another layer of gauze. My patient is now accustomed to the odor and has not experienced any of the unpleasantness of which his friends have told him, and he breathes in a normal and natural manner. I steadily increase the number of drops and gradually increase the number of layers of gauze, and in from three to five minutes the patient passes through the primary stage without suffocation or choking sensations. In this stage you will find the respirations accelerated, the blood pressure slightly increased, the pulse full and bounding, the color reflex heightened, and the pupils dilated. The special senses are disturbed, though in what order I cannot say. If in this stage you administer the anesthetic in too concentrated a form, you will find that your patient has difficulty in breathing, complains of a feeling of suffocation, coughs, and turns his head from side to side.

As the second stage, or what is commonly called the stage of excitement, and incorrectly so, comes on, the number of drops and the layers of gauze are increased. Never try to hasten this stage, but keep on administering your ether drop by drop. Rarely do I see any excitement, struggling, holding of breath, or cyanosis during this stage, the patient passing through it gradually and quietly, with a very slight stiffening of the body. The pupils continue

to be dilated and mobile, mucus and saliva are freely secreted—the excess should be wiped away—the face is flushed, and perspiration appears on the face and other parts of the body. The pulse is still accelerated, full, and bounding. In this stage apnea may occur, but this phenomenon disappears as the patient becomes more and more deeply anesthetized. As the patient passes into the third stage, the respiratory muscles become more flaccid and there is no longer any danger of respiratory interference.

As we pass into the third stage, the respirations are now full, regular, and generally audible. A soft stertor may be considered normal, but if breathing becomes strongly stertorous, it is an indication of some obstruction in the airway. I consider the respirations the principal guide to the depth of narcosis. When the regular, automatic respiratory action is obtained, it should be maintained, bearing in mind slight variations in different patients and the field in which the surgeon is operating. Cyanosis should at all times be considered a dangerous symptom. We find the pulse in this stage slightly accelerated, full, and bounding, but regular. The face is usually flushed. Blood pressure, as a rule, remains constant. The pupils, when no preliminary medication has been given, will be found to be slightly dilated or normal and to react to light. The eyeballs may be fixed, but sometimes may be rolling, a condition I have found in a number of cases.

I have briefly gone over the different stages of ether anesthesia and told what occurs in the different stages when ether is properly given. The patient is now ready for the surgeon. From now on, it is the duty of the anesthetist to keep his patient in a state of narcosis to such an extent that the reflexes will not be interfered with; he should not have his patient too far under the influence of the ether nor should he have his patient half anesthetized. You will find that if you use your ether carefully and drop by drop, you require very little ether to keep your patient in this happy condition.

In a series of forty-five cases of operations in the upper abdomen, in which the combined method of ether and the anociassociation technic of Crile were used, I found that the amount of shock and the amount of ether were greatly diminished in all. The cases were of such a nature that a great amount of shock would be expected, such as draining of the gallbladder, removal of the gallbladder, gastroenterostomies, and the breaking up of adhesions in the upper abdomen. In several cases the nitrous oxide, ether, oxygen method, in association with the method of Crile, was used with even better results than when ether alone was used.

In the consideration of the anociassociation, we are brought to a question of trauma. We know that no pain is felt during a surgical operation in which the patient was anesthetized, say, with ether, but we know that while some of the brain cells are anesthetized, all of them are not for the simple reason that if they were, we should kill our patient. Now the question is asked, What effect has trauma under surgical anesthesia upon the cells of the brain which are not, as you might say, anesthetized but wide awake? Again, if under surgical anesthesia the traumatic impulses cause an excitation of the wide awake cells, what influence, if any,

has it upon the anesthetized cells? Whether the anesthetized cells are influenced must be determined by noting the physiological functions after anesthesia has worn off. We know by experience that the vasomotor centres, the respiratory centres, and the cardiac centres can be easily stimulated while the patient is under surgical anesthesia, by traumatic stimulation of various regions of the body, and we know that if the trauma is long continued, we get an exhaustion of the entire brain, not only of the supposed anesthetized cells, but of the wide awake cells as well, and this condition is commonly spoken of as *shock*. This is the condition which Doctor Crile in his numerous experiments has tried to eliminate from a surgical operation. He believes that if he can block off the nerve impulses which arise from the handling of tissues, he has to a great extent eliminated shock, and furthermore he believes that by judicious anesthetization of the peritoneum, he can eliminate almost entirely that very unpleasant condition of gas pain following almost every abdominal operation.

To overcome this trauma Doctor Crile has been infiltrating the entire field of operation with a solution of novocaine, anesthetizing the area just as if he were performing the entire operation under local anesthesia. Under these circumstances the brain remains in a completely negative state during the entire operation, and no damage has been done to the brain cells; hence there is no surgical shock.

In conclusion, I agree with the following views expressed by Doctor Gwathmey: The anesthetic should be of such a nature or combination, or must be capable of such administration, as will reduce the danger to life to a minimum.

The anesthetic agent should possess such physical properties that it is easily taken into the system.

It should produce the general, complete, or temporary inhibition of action of the nervous mechanism presiding over cerebration, sensation, and motion.

It should be capable of administration with the least interference with respiration, circulation, or other vital processes.

It should act in such manner that its immediate effects are at all times under the control of the administrator.

It should reduce general shock to a minimum.

It should not cause serious or lasting aftereffects, the organism promptly resuming the physiological functions existing immediately before the administration of the anesthetic.

The agent should be of such a nature, and the anesthetizer should possess such ability, as practically to eliminate the second stage of anesthesia, the stage of excitement—during which the dangerous phenomena of anesthesia are often noted.

1327 NORTH FIFTEENTH STREET.

Pathological Fractures.—According to the *American Journal of Surgery*, a pathological fracture is usually due to a bone tumor (sarcoma, carcinoma, myeloma), cyst or gumma. An expert interpretation of a radiograph will best serve to distinguish these. The Wassermann reaction, it must be remembered, is sometimes negative in tertiary syphilis.

FUTURE LINES OF PROGRESS IN CHILD HYGIENE WORK.*

BY S. JOSEPHINE BAKER, M. D.,
New York,

Director, Bureau of Child Hygiene, Department of Health.

Public health work for children has steadily and progressively deviated from our preconceived ideas of the relation of health boards to the community. It is an expression of the social conscience of the people, together with an enlightened desire on the part of health authorities to direct and educate, rather than to correct and punish. It is a vital principle of the new public health creed that is eliminating the dogmatic edict, "this you must not do," and substituting the hopeful message, "this you should do, and we will help you."

That, in one large city at least, this ideal has been partially achieved, is demonstrated by the present status of the Bureau of Child Hygiene of the Department of Health of the City of New York. The sanitary code, which comprises all the laws promulgated by the board of health in relation to the health of the people of the city, has 362 sections. Of these, only five relate directly to the work of the Bureau of Child Hygiene, while one other section concerns this bureau in connection with the Bureau of Infectious Diseases.

Little legislation is needed in carrying out a program of child hygiene work. Its basis is a system of public health education. Standing as it does, therefore, for educational and preventive health work during the important and formative period of childhood, the program for future achievement in child hygiene must, necessarily, emphasize these points. It is not my purpose, in this short paper, to attempt a survey of the work that the bureau has accomplished since its organization in 1908, but, in order that the need of future activity in any one line may be seen more clearly, it is essential to know at least the broader aspects of what we have already accomplished.

The controversy regarding the status of the midwife has brought out many divergent views as to her usefulness or her necessity. Here, in New York at least, whatever our wish may be in regard to the midwife, we must face the fact that she is already established and that she is in attendance at about thirty-seven per cent. of the births, a yearly total of about 53,000 confinements.

The midwife's status has now been placed on a fairly high level. Before obtaining a permit to practise, unless she has already held such permit, the midwife is required to take a six months' course in midwifery at a school recognized by the department. The department's established standards for the conduct of these schools are rigid and comprehensive.

The general supervision, and the collective and individual education of these women by the inspectors and nurses of the bureau, have resulted in a markedly improved practice. Certainly, in regard to the occurrence of ophthalmia neonatorum in the babies under their care, of puerperal septicemia in the mothers, or in the number of stillbirths or deaths during the first week of life, midwives, in

*Prepared at the request of and read before the Public Health Education Committee of the Medical Society of the County of New York, at the Academy of Medicine.

proportion to the number of births under their care, are maintaining a very creditable record.

At the present time, the lying-in hospital facilities of New York are absolutely inadequate to meet the need of caring for this large number of cases, and even if this need is wholly met, there still will be a large proportion of women who will refuse to go to hospitals and who will demand care at home during the time of confinement. A woman who employs a midwife can pay a very small fee and, for this, the midwife gives attendance at birth, care of the home, and nursing service during confinement and for ten days thereafter. Unless physicians are prepared to give or to provide this same service, they can hardly demand that the midwife be not allowed to practise. Medical services alone do not provide a substitute for the work now done by the midwife.

Constant and unremitting education is also essential to overcome the inherent and racial prejudice that exists among the greater part of our foreign born population in favor of the midwife. In attempting to solve what has been called the "midwife problem," the medical profession as well as the laity must not only be conversant with the present firmly entrenched position of these women, but must recognize that, on the whole, they are rendering efficient service. They cannot and should not be eliminated, but the limitations of their service should be sharply defined and maintained, and their standard of practice raised to a high level of efficiency.

The reduction in the infant death rate is probably the most notable contribution that organized child hygiene work has made toward the welfare of the community. Throughout the cities of this country the results of such work have been striking and progressively efficient. In New York, where possibly more extended work of this character has been carried on than elsewhere, the results have fully justified the expenditure of energy and money. For 1914, New York shows a death rate of babies under one year of 94.6 per 1,000 births, the lowest infant death rate of the ten largest cities in the United States.

Since 1907, the year before the Bureau of Child Hygiene was organized, the infant death rate has been reduced from 144 per 1,000 births to 94.6. This result is more graphically shown by the statement that, during 1914, there were 4,125 fewer deaths under one year of age than during 1907, notwithstanding the great increase in the number of births. Other cities have similar results. In fact, wherever organized work for the reduction of infant mortality on proper preventive lines has been undertaken, the results have been good. Surveys of the entire country now show the curious condition of a higher infant mortality rate in the smaller towns and rural communities than in the large centres of population.

All effective work for the reduction of infant mortality must be founded upon the direct idea of the reduction of infant morbidity. This point should be emphasized. Any campaign merely to keep babies alive must necessarily be a failure, because children may easily succumb during the second or third year of life. The true test of the success of any infant mortality campaign lies, not in the reduction of the death rate under one year, but in the reduction of the death rate under five years. In

New York, taking the past five year period since this work was inaugurated, and comparing it with the previous five year period, the decrease in the death rate has been greater between one and two years, and between two and five years, than it has been under one year. Efforts to keep babies well and to prevent sickness rather than to correct it, must necessarily result in a lessened death rate, and the value of this educational method is in its permanent results.

As the gastrointestinal diseases have always been considered the most prolific source of illness in babies and the greatest cause of death, they naturally have been the first ones attacked. The encouragement of breast feeding, the provision of a safe milk supply for feeding babies who could not be nursed, and, above all, the instruction of the mother in the methods of hygienic care of the baby, and the recognition and remedial application of the social and economic conditions affecting infant welfare, have been our program in the past. Practically all of this effort has been directed against the occurrence of the gastrointestinal diseases, with the result that the reduction in the total infant death rate has been almost entirely among diseases of gastrointestinal origin. They now rank third in the order of importance as a cause of infant death.

If the infant mortality rate is to be still further reduced, the work of the future must be very largely directed against the prevention of the so called "congenital" causes of death. At the present time, about forty per cent. of the deaths under one year of age occur in the first month of life, and these are due, almost entirely, to conditions affecting the mother before the child is born. A certain proportion of these deaths can hardly be prevented with the knowledge that we now have, but, certainly, the majority of them, which are due to so called "congenital" debility, prematurity, or weakness, can be prevented if we can control the conditions affecting the mother during her period of pregnancy.

Such work has been started by the Bureau of Child Hygiene. The results have been striking enough to warrant its continuance. We have had approximately 500 mothers under observation during 1914, with no maternal deaths. Ninety-six per cent. of the babies born are living now. The deaths under one month, per 1,000 births, were sixteen, compared with thirty-seven for the city, a reduction of about one half. The stillbirths in these cases were seventeen per 1,000 births, compared with fifty for the city at large—not much more than one third. All cases are, of course, referred primarily to the family physicians for care during confinement. If the women are unable to pay physicians, the cases are referred to institutions.

The second important causes of deaths of infants at this time are comprised in the group classed as "respiratory diseases." Here we have advanced little, if at all, and it is to be hoped that in the future, greater progress can be shown along the lines of prevention of such diseases in infants. Unless these two lines of work are taken up vigorously, it is hardly possible that the infant death rate can be much farther reduced, and it would not be surprising if an increase occurred.

The field for improvement in school medical inspection work is so vast that it is hardly possible to

mention any phase of it within the limits of this article. The present methods in this city have resulted in the practical elimination of the contagious eye and skin diseases among public school children. The number of physical defects has been reduced fifty per cent. in the past five years, and the system of control of general contagious diseases in school children has been successful in eliminating the widespread epidemics in schools which used to occur each winter.

The extent of medical inspection and of physical examination depends almost mathematically upon the size of the staff of medical inspectors. The practice of having children examined on their entrance to school, and in the third and sixth grades, seems to me to be sufficient for the purpose of safeguarding their health. Physical defects occur in inverse proportion to the age of the child, and their prevention, or provision for their proper care during the early years, has a marked effect in the prevention of the sequelæ which so often mean permanent injury to the child. Extension of this work, so that each child may be examined by its own physician, if the family prefer, rather than by the school doctor, is now an accomplished fact and undoubtedly will result in a larger number of children being examined and placed under proper care each year.

There is one disease of child life that demands more serious and extended consideration than it has yet received. Malnutrition in childhood is not only the basis of much ill health in future life, but it is becoming more and more prevalent, and increasingly difficult to prevent. Our knowledge of its etiology is still far from perfect. Further study should be made along this line. It is, in my opinion, a condition which shows more clearly the social and economic status of the community and of the family than any other one disease that we meet. The remedy, therefore, will probably have to be a widespread one. Better housing, more playgrounds, proper food well prepared, fresh air, sunshine, proper time for rest and play, and better sanitation and hygiene, not only in the home but in the schools, need to be more widely provided and applied.

In school medical inspection, special emphasis has been laid upon the physical condition of the child. More emphasis in the future should be laid upon the home conditions of sanitation and hygiene and the health routine of child life, and upon the sanitary condition and hygienic conduct of the school building and the routine of school life. It is to be hoped that the work of bureaus of child hygiene in school medical inspection may become as wholly preventive as it is at present in the effort to reduce infant mortality.

Medical or surgical treatment is wholly without the province of a properly conducted bureau of child hygiene, unless, indeed, it is the treatment of minor contagious conditions not severe enough to warrant the attendance of a physician, or unless such corrective work be forced upon it by the lack of adequate facilities elsewhere. At the present time, the Bureau of Child Hygiene of New York city, maintains five small hospitals, where adenoids and enlarged tonsils are removed under gas and ether anesthesia. These hospitals were organized and placed in sections of the city where no other

facilities were available. Such action was taken as an emergency measure, to meet a pressing and essential need, but, just so soon as private or public philanthropy can make adequate provision for surgical care of the children, this work should no longer be left under the care of the bureau. In a similar way, corrective dental treatment on any large scale would not seem to be the function of the city authorities. Such efforts and energies should be concentrated on the prevention of dental defects, just as the efforts should be concentrated on the prevention of nose and throat defects rather than their correction. The present dental clinics of the Bureau of Child Hygiene are committed to this policy.

For the past year, the only children cared for have been those from six to eight years old. Taken at the time when the first permanent teeth are appearing, the mouths have been placed in good condition, the children taught to practice the principles of oral hygiene, and required to report to the dentist every six months thereafter. The results have been encouraging. With clean mouths, future repair work has been reduced almost to a minimum. If this work can be extended, not necessarily with dentists, but possibly by the employment of the so called "dental hygienists" as suggested by Doctor Fones, of Bridgeport, Connecticut, I believe we shall have solved in great part the hitherto insurmountable difficulty of the care of defective teeth in children.

Such, briefly, are the most pressing problems to be met in the future. Many others, hardly less important but perhaps less extensive, must also be met. The history of the child hygiene movement can hardly be said to have begun. The Bureau of Child Hygiene of this city was the first to be organized in the United States, and is now only seven years old. Necessarily, it has had to establish its own precedents, to organize and elaborate its work in the directions where the need was most evident. Whatever success it may have had, has been due to the development of a purely educational phase in public health work, with gradually increased co-operation on the part of the public.

The activities of the bureau reach, directly and individually, over 1,200,000 children in this city each year. Its opportunities for usefulness are unbounded. The full measure of success of any purely preventive and educational public health work cannot be achieved, however, by any system or organization, no matter how carefully planned or managed, without the interest, understanding, and cooperation of the medical profession, the fathers and mothers, and all those who control the complex forces that influence the physical welfare of the child.

"LEST WE FORGET."

By J. W. KENNEDY, M. D.,
Philadelphia.

The busy professional and commercial world soon forgets the dead; it matters not how much we are benefited by the heritage of the distinguished deceased. To review the life of the late Joseph Price will bring forth so much that is unnatural and uncommon in comparison with others in our profession, that I should be unmindful of my duty as his

pupil if I did not dwell on some of the characteristics which it would pay any man to emulate.

I doubt if any physician ever lived who was so well known and yet had done none of those things which go so far to advertise one's self. Who other than he made a worldwide reputation as an operator and teacher, who had not been an instructor in some school or who had not written himself to fame? No man living or dead so hated the notoriety which comes from yellow journalism and other like media of advertising. God only knows how many lives would be saved if more men could be made to gravitate to a position in our profession which is proportionate to their real ability. What citizen is more dangerous than a teaching physician who is misguiding five hundred students?

Doctor Price was never an actor, but always a great surgical philosopher. I never knew any man who was so deaf to the plaudits of his audience. He was always so natural himself, whether his audience was humble or distinguished. He knew no such thing as professional diplomacy and deprecated the same as professional dishonor, cowardice, and hypocrisy. This personality made him hundreds of enemies, a sad commentary on the honesty of humanity. "Come out from among them and be ye separate," could appropriately be said of him.

I doubt if the young physician with a professional burden ever had so staunch a friend. It would be an unmerciful reflection upon the profession were the public to know of the hundreds of errors by beginners which were fathered by him. Many of his enemies came to him with their professional mistakes because they knew if there was a man who could aid them through superior skill, it was he. He gave these men the same protection he would give to a member of his family. He was caustic to the man in error for humanity's sake and then protected him against vicious gossip with the same firmness of purpose. I speak thus as I was often a victim.

His views toward his own profession were those of a great statesman. He had the most exalted ideas about the medical world. He had the bitterest feelings toward all commercialism in the profession. He opposed strongly all contract work. It was his view that the profession should dictate terms to corporate interests. He was one of the very first men in the profession who bitterly attacked the pernicious and murderous habit of professional graft. No man's duty was so little regulated by the almighty dollar. Numerous times he has asked me to close the door of his consulting room filled with well to do patients, in order that he might leave his institution to operate on some poor colored woman in an outlying hospital. He spent thousands of dollars on railroad fare in order to do missionary surgery in the rural districts. His professional philanthropy had no limits.

He conducted for twenty years one of the largest if not the largest private hospital in the world, and so far as I know, the only private hospital whose doors were open day and night to the poor, irrespective of race or color. It could always be said of his institution, that the only requirement to enter, was the need of surgical care.

For a number of years Doctor Price's professional earning capacity was probably the very largest in

America, yet he died a man of no means. His professional duty always came first, business relations last, a procedure, I am sorry to say, that will pauperize any man. He received hundreds of letters from doctors of every State in the Union thanking him for the surgical object lessons which they had received in his "four dollar operating room," as he liked to call it. It was his source of greatest pleasure to feel that he had helped some aspiring physician to save lives by object lessons received in his clinic. This gave him his happiest hours.

I once offered to modernize his operating room in appreciation for my apprenticeship, but he refused on the ground that the majority of men who visited his clinic could not afford to have a modern operating room in their country districts, and this might prevent them returning to their homes and becoming useful surgeons in their respective communities. He was the one surgeon who told the aspiring young surgeon to do the work himself, saying, "you cannot ship the acute abdominal conditions to me or to any distant surgeon." Right along this line of thought, every young physician in America should raise his hat to the memory of the late Joseph Price. His unselfishness here was a mountain of virtue and strength, which went far to educate young surgeons scattered throughout our country. He was so much the master of his own work, that he felt any surgeon could be as much. Right or wrong in this thought, it had embodied in it a surgical generosity as noble as it was uncommon. He never discouraged a beginner by magnifying the scope of surgery.

He was a gladiator in discussions for his principles, and his ferocity in statements made him many enemies, but those same enemies were the most welcome to his clinic.

The professional world would have better understood this great man if it had realized that he was fighting for principle rather than for personalities. He had no use for professional suavity or any other trait which was intended to conciliate or to increase one's bank account. He was a great student of humanity and knew that the best surgery in the world would not produce as large a clinic as a little newspaper and journalistic notoriety and other damnable and commercial agents which eat the heart out of any honorable pursuit.

He wrote many letters to surgeons, advising them to abandon certain surgical procedures, because he was constantly undoing their work on the surgically crippled patient. Such letters had the most exalted intentions, but were received with indignation and bitterness. Here is where we are at error in our profession; petty feelings have no place in the lifesaving service. I know that fully ninety per cent. of the deaths in educational centres from acute abdominal lesions are due to human errors. (With the privilege of this JOURNAL, I expect to call attention in the near future to some of the reasons for this unnecessary mortality).

No operator was so unceasing in his radical discussions to advance those principles which would permit us to operate with a mortality which should be proportionate to the surgical privileges of the age. He had little patience with the author who composed a monograph from a half dozen text-

books, and he looked upon the same as a waste of time to both author and reader.

Dr. Louis McMurtry, of Louisville, Ky., says of the late Doctor Price: "There are few operators in America who do not show in some way the hand-work of Joseph Price," and W. J. Mayo says, in the *Journal A. M. A.*, that the three men to whom the world is most indebted in abdominal surgery were Price, of America, Péan, of France, and Tait, of England. It had not been my intention to refer to the surgical ability of Joseph Price, but as he was not an author, he left few tangible records of his great work, so I trust this may find some sympathetic ear.

There was no operator so original in his technique as he, yet there is not an operation or instrument which bears his name and this is as he would will it. How refreshing it is to know of the greatness of a man who was too much a man to know it himself. Clinically, he was a brilliant teacher, and his object lessons were so forceful that the observer often found himself lacking in capacity when attempting to follow the Price technic, after witnessing a single exhibition. His great energy and enthusiasm inspired all around him to greater things.

He had the usual eccentricities of a great man. He was lacking in logical discussion of a single subject, but his epigrammatic manner of talking was forceful and memorable. He never courted patient or doctor for ulterior motives; there was but one thing which brought him patients, and that was successful surgery. He was most dominant in what he thought was right. A coal dealer relates an incident which was typical of the man; Doctor Price had disputed a coal bill of a thousand dollars on account of a disparity of fifty cents in estimates. After settling at his own figures, he sent the coal dealer the following day, a blooded calf and paid the express, amounting in all to one hundred dollars.

Men of this calibre pay a thousandfold for their unique convictions, and it is too bad that humanity is not a better judge. A great soul is little in need of reform; a little patience often supplies the missing link.

241 NORTH EIGHTEENTH STREET.

Dependent Intercostal Drainage in Acute Empyema.—T. Turner Thomas, in the *Pennsylvania Medical Journal* for November, 1914, emphasizes the value of perfect, dependent drainage in empyema; he recommends a simple intercostal incision between two of the lower ribs, e. g., in the eleventh interspace. According to his experience, this procedure provides even more effective drainage than actual rib resection, with the added advantage that expansion of the lung is better. The size and situation of a drainage opening have an important bearing upon lung expansion, which, in fact, cannot take place at all unless the pressure of the external air admitted to the empyemic cavity is in some way reduced below that of the air admitted into the lung through the trachea. An opening large enough to admit the usual rubber drainage tube to the bottom of the empyema provides perfectly free drainage; it is effective in any position.

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLVIII.—How do you treat heartburn? (Closed.)

CLIX.—What is the proper role of the dentist in the therapeutics of internal diseases? (Answers due not later than June 15th.)

CLX.—How do you treat flatulence? (Answers due not later than July 15th.)

CLXI.—How do you treat syncope? (Answers due not later than August 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLVII was awarded to Dr. Louis Hubert, of New York, whose article appears below.

PRIZE QUESTION CLVII.

THE TREATMENT OF DIARRHEA.

BY LOUIS HUBERT, M. D.

Diarrhea is not a disease, but a symptom, and must be regarded solely as an evidence of intestinal disorder. In a general way we may consider that all diarrheas are due either to bacterial infection or to the direct chemical action of carbohydrates, fats, proteins, or mineral salts upon the digestive apparatus, or to a combination of both causes.

We may then divide the diarrheas into three classes: 1. Intestinal indigestion; 2, infectious diarrhea; 3, diarrheas not included in 1 or 2, and appearing as a symptom of certain diseases, e. g., tuberculosis of the intestine, tabes dorsalis, antimony and arsenic poisoning, uremia, etc.

The treatment of each form of diarrhea will depend upon the cause and the age of the patient. The diarrheas of infancy and early childhood require special consideration on account of their greater urgency, and as the digestive and metabolic functions are relatively predominant at this age, any derangement of the gastrointestinal tract involves a greater disturbance of health.

In simple intestinal indigestion of infants, caused by taking more fat, sugar, or starch than the infant can digest, it is often impossible to differentiate between fat, sugar, and starch diarrhea; it is not necessary, for, by omitting the starch and artificial sugar altogether, boiling the milk to make the protein more digestible and taking one third milk and two thirds water, so diluting the fat, the diarrhea may be overcome. It is a good idea to give from one to two drams of castor oil to get rid of the irritating materials. In case of adults, regulate the diet, which should be made up chiefly of boiled milk or milk and whey. Administer a good dose of castor oil and, to prevent griping, add some laud-

anum. *It is a good rule never to give opium to any patient below five years of age, unless absolutely indicated, and then with great care and watchfulness.* A mustard plaster should be applied to the abdomen. If there is a tendency for the diarrhea to return, indicating a deficient secretive action on the part of the intestinal glands, give some dilute nitric acid and compound tincture of cardamom.

The treatment of infectious diarrhea will depend upon the character and severity of the infection, 1, whether the infection is mild or severe; 2, whether the diarrhea is a fermentative or putrefactive one. Under certain conditions either the fermentative or the putrefactive bacteria are in the ascendant. These conditions are brought about by supplying the food upon which the bacteria will thrive. If a carbohydrate diet is given the putrefactive bacteria theoretically are starved out, and if a protein diet is given the fermentative bacteria are starved out. Putrefactive diarrhea, then, is due to bacteria that feed on protein and fermentative diarrhea is caused by bacteria that feed on carbohydrates.

This forms the basis of treatment, which gives excellent results. In case of putrefactive diarrhea stop proteins and give carbohydrates, and in case of fermentative diarrhea, stop carbohydrates and give proteins. In addition to having the power of killing each other off, these bacteria seem to possess the power of changing themselves from fermentative to putrefactive organisms, i. e., in treating a case of fermentative diarrhea by stopping sugar and giving proteins, one often sees a fermentative diarrhea change into a putrefactive one, and when this occurs, we should give a carbohydrate diet.

Mild infectious diarrhea is easily cured by simple attention to the diet and by a mild laxative. The severe infectious diarrheas, cholera infantum and cholera morbus, require the most energetic treatment. Every endeavor should be made to prevent the growth of microorganisms in the bowel, to aid in the elimination of the toxins, and to support the vital energies of the patient.

Dysentery, which is either of the bacillary or amebic type, is a very obstinate form of diarrhea and requires much skill and patience for its cure. Four remedies are of value, namely magnesium sulphate, sulphuric acid, calomel, and ipecac. A saturated solution of magnesium sulphate, half to one dram every two hours, will invariably stop the bloody discharge in twenty-four hours. It is advisable to add ten or fifteen drops of aromatic sulphuric acid to each dram of the saturated solution of Epsom salt.

In cases of amebic dysentery, emetine hydrochloride, one half to two thirds grain, twice daily, acts almost like a specific, and thus are avoided the nausea and vomiting that result from the ipecac treatment.

If the passages are slimy and bloody, bichloride of mercury, 1/200 grain, every half hour, acts admirably. In some cases (only in strong persons) iced water enemata of at least one quart injected by hydrostatic pressure are of the greatest service.

Sudden diarrheas attended with marked evidences of intestinal irritation should be treated with promptness, and active remedies should be given early. As a rule, the preliminary elimination is so

free that little is gained by purgation, and this may at times be harmful. Bismuth subcarbonate in thirty grain doses, repeated doses of opium, and an occasional hypodermic injection of morphine may be given, but be careful to find out the cause of the diarrhea first, and do not witness, as I had occasion, the stoppage of the diarrhea to be replaced by uremic coma.

There is a form of watery, serous diarrhea, where the bloodvessels of the gut are relaxed and leaking. This relaxation may result from fear (nervous diarrhea), from exposure to cold, exhaustion, or extreme heat. The treatment is directed to the contraction of the dilated and relaxed bloodvessels and the restoration of the proper nerve supply to the parts. As the splanchnic nerves are the vasomotor nerves as well as the inhibitory nerves of the intestine, the best drug to be used is opium, which stimulates the splanchnic nerves and so causes diminished intestinal peristalsis and secretion. Small doses of volatile oils and spirit of chloroform are also of service, and as there is relaxation, astringents are also indicated.

In some cases attacks of diarrhea seem to depend on hepatic disorder, and the only cure is to be obtained by from two to six grains of hydrargyrum cum creta or calomel in small doses till two and a half grains have been taken. It is important in these cases to flush thoroughly the intestine with bile to check the diarrhea permanently, otherwise the diarrhea will persist for weeks.

Diarrhea is sometimes due to deficient glandular action, and these cases are often benefited by hydrochloric acid and pepsin. If the duodenum is at fault, small doses of nitrohydrochloric acid are useful.

One of the most obstinate conditions a physician has to treat, is chronic diarrhea. We have to get at the cause of the trouble. In cases due to hyperperistalsis, direct the patient to take as little liquid as possible, particularly at meals. Highly seasoned foods should be avoided. In general, we may say that diet plays a more important role than drugs. No general rules can be laid down regarding the most desirable diet, as individual peculiarities play an important part, and therefore require individual consideration. In most cases boiled milk is most suitable, but some patients cannot tolerate milk in any form. In such cases eggs and rare meats with a farinaceous diet may prove more acceptable. Counterirritation over the abdomen is useful. If the catarrhal state is persistent, no drug is better than ammonium chloride, five grains every four hours. In some cases astringent preparations act well. Some cases of chronic diarrhea are dependant on a surgical condition, e. g., fissure of anus, and an operation will cure the diarrhea.

Dr. Frank C. Makepeace, of New York, observes:

In infancy it is usually a simple matter to overcome diarrhea by proper advice and treatment of the mother without directly treating the infant, but when these measures fail, the infant must be weaned and artificially fed with a properly modified cow's milk. In bottle fed babies diarrhea may often be eliminated by simply increasing the quantity and strength of the barley water used in the food, or the amount of milk sugar, or both; it may be only

necessary to increase or decrease the quantity of cream or top milk in the mixture. When the simple means fail and the diarrhea continues, all feeding should be stopped and the infant given only plain boiled water at each feeding time for a period of twenty-four hours, this being replaced for the next twenty-four hours by plain barley water. When the feeding is stopped, a dose of castor oil should be given and the bowel then washed out with plain warm water passed through a small soft rubber catheter; when the bowel has been thoroughly cleared, five grains of bismuth subcarbonate should be given every three or four hours until all diarrhea and tenesmus disappear, a new feeding formula being then instituted and gradually increased in strength until the desired point is reached.

In childhood the diet should consist only of easily digestible foods, all pickles, tea, coffee, etc., being prohibited; unripe and overripe fruit should not be permitted at any time, while candy should be eliminated or given only in small quantity. Carious teeth should receive proper attention by a competent dental surgeon, while chilling may be avoided by the use of proper dress. Nervous excitement will require quiet surroundings, while in hysteria it may be necessary to remove the patient entirely from his surroundings. The medicinal treatment for the acute conditions in these cases is as follows: Give one eighth grain of calomel with sodium bicarbonate every ten or fifteen minutes until eight doses have been given; follow this with one to four fluid drams (according to age) of castor oil; place the patient in bed, and maintain perfect quiet. When the bowel is thoroughly cleaned out given ten to fifteen grains of bismuth subcarbonate, every three hours, until the diarrhea is checked; if tenesmus is severe, it may be quieted by applying a hot water bag to the abdomen and giving ten to fifteen minims of camphorated tincture of opium every two hours for a few doses. The diet during the acute attack should be absolutely liquid, the return to a solid diet being accomplished gradually. In the nervous and hysterical cases, much benefit will be derived by the use of five to ten grains of sodium bromide two to three times a day.

In adult life treatment will naturally divide itself into the removal of the cause, the direct treatment of the acute condition, and proper treatment to prevent recurrence. A study of the diet will give information as to the articles of food which must be prohibited; treatment by a competent dental surgeon will remove carious teeth with their bearing on the cause; instruction in the proper mastication of food will be necessary in some cases; nervous excitement and hysteria will have to be treated as such, as will alcoholism and indigestion.

Nervous excitement and hysteria will be improved by the use of sodium bromide (ten to twenty grains, three times daily) with the removal of the external causes; an enforced vacation with removal from the usual surroundings and absolute rest may be necessary in these cases. In alcoholism the patient must be first treated for his alcoholic taste, and then for the chronic gastric catarrh which exists in these cases. Indigestion will require special treatment according to whether it is gastric or intestinal, and whether due to an excess or deficiency of acid. The

bowel must be thoroughly cleared as described above, the diet restricted, and the necessary medicinal treatment instituted. The alcoholic cases will require bromides for the nervousness, bismuth subcarbonate and acetanilid for the gastric pain, and hydrastis with nux vomica for the actual catarrhal condition. Gastric indigestion, when due to a deficiency of normal hydrochloric acid, will require fifteen to twenty minims of a dilute mineral acid in half a glass of water after each meal, with a diet of easily digestible food; if due to hyperacidity the case will require cascara sagrada for the constipation which is always present in these cases, and dram doses of rhubarb and soda mixture in a wineglass of water before each meal. In intestinal indigestion the patient should be placed on an absolute milk diet for several days, while forty to sixty grain doses of bismuth subcarbonate should be given every four hours; the diet should then be increased by the addition of a slice of buttered bread three times a day for two days; this being further increased by the addition of boiled rice, then a baked potato, and so on until full diet is again reached.

Diseases in which diarrhea is only a symptom must be given appropriate treatment for the disease itself; while in all cases a little study and thought will avoid the use of opiates and narcotics, except in unusual cases.

Dr. Charles H. Nammack, of New York, observes:

One's first effort should be to rid the bowel of irritating material. The patient is put as completely at rest as possible, preferably in bed, and a diet consisting exclusively of boiled milk, milk toast, and cooked rice is given. The most effective cathartic is castor oil, half an ounce, or if this is intolerable to the patient, one to two drams of the aromatic fluid extract of cascara. Under this régime and treatment most of the acute cases will subside in twenty-four hours. If at the end of this period the frequency and character of the movements continue as before, a bismuth salt, preferably the subgallate, should be given after each movement, the dose being twenty to thirty grains. The lead and opium pill will sometimes be found useful in the cases in which pain and distress at the time of movement are the leading symptoms. It may be administered twice a day.

The subacute cases result from the neglected acute cases and are characterized by more marked symptoms of intestinal fermentation and gas production than the acute cases. The symptoms are a continuance of the diarrhea with autointoxication, which manifests itself by a feeling of lassitude, loss of appetite, headache, coated foul tongue, and occasionally by fever.

The treatment consists of the diet and preliminary purging already described, with the administration of castor oil and salol. Rest in bed is more essential in these cases than in the acute cases. As the symptoms subside in both forms, the medication is reduced and finally omitted with a gradual return to the usual diet.

Cases of diarrhea that persist for more than a week should be regarded as chronic, especially if there is any mucus or gross blood in the stools. The stool in all such cases should be examined for ova,

parasites, amœbæ, and mucus content in order that an amebic or other form of dysentery may be ruled out. When this has been done the treatment does not differ from that of the subacute cases.

It should be remembered in the chronic cases that the causative factor may be a gastric indigestion, either with hypersecretion of mucus, or an achylia, with absent or greatly diminished hydrochloric acid. The passage of such a gastric content into the intestines frequently results in hyperperistalsis and the passage of a loose watery stool in one half to one hour after meals. This type of case is encountered most commonly in women of the gastropototic habitus and in alcoholics.

In cases where one suspects such a condition of affairs, a gastric analysis should be done. If the gastric content is as described, a most satisfactory treatment consists of a daily gastric lavage with two quarts of warm water given usually before breakfast, and the administration of dilute hydrochloric acid, ten to twenty minims, in half a glass of water after meals.

The diet in these cases should consist of light stimulating meals taken at frequent intervals without fruits. A stomachic, such as tincture of nux vomica or a mixture of capsicum, nux vomica, and gentian may be given just before meals as a therapeutic cocktail. Alcoholic beverages are absolutely forbidden to these patients.

(To be continued.)

Therapeutic Notes.

Treatment of Gastric Ulcer by Excision.—E. Stanley Ryerson, in the *University of Toronto Medical Bulletin* for May, 1914, makes an appeal to the practitioner not to allow cases of chronic gastric ulcer to become so advanced before considering operative treatment that only some palliative surgical procedure can be carried out. He regards as chronic all cases in which symptoms have yielded repeatedly to medical treatment, only to recur later, with a progressive increase in the cicatricial tissue deposited in the gastric wall around the site of the ulcer. There are at present various opinions as to the best means of treating such cases, especially in the presence of a small ulcer on the anterior wall or lesser curvature, feeling like a button in the stomach wall. Some advocate a gastroenterostomy in such patients; others, the production of pyloric obstruction followed by a drainage operation, and others still, excision of the ulcer. The latter is considered by the author the ideal operation, since it deals directly with the pathological condition. The chief argument against it has been the supposedly high mortality; the mortality from excision having been stated as about twenty-five per cent. and that from other methods as only from two to five per cent. This statement the author believes to be incorrect, the impression of a high mortality resulting simply from cases where the ulcer had extended deeply into the pancreas or liver, or with extensive adhesions. If, on the other hand, gastric ulcer was treated by operation at a comparatively early stage, the excision consisting merely in the removal of an elliptical or V shaped portion of the stomach wall,

the mortality could not but be low, and in this type of case excision alone should usually be sufficient to cure the patient. This ideal method of treatment demands that physicians urge their patients to undergo operation much earlier than is now the case. Ryerson insists that the correct time to advise operation is, as soon as the ulcer has become chronic; this is indicated pathologically by the extension of the ulcer through the muscular coats—a condition which can be frequently detected by fluoroscopic examination, and by the formation of adhesions to surrounding organs and of fibrous tissue in the stomach wall, in and around the ulcer. Adhesions can often be seen either by means of the fluoroscope or by x ray plates of a bismuth meal; while the number of years over which the history of the case extends, with the number and length of the attacks, give very tangible evidence upon which to estimate the extent of cicatricial deposit. The definite decision that a chronic ulcer exists in some cases may not be reached for six months to two years, but once it has been made, excision should be advised.

Extraction of a Missile from the Left Lobe of the Cerebellum under Local Anesthesia.—Rochard (*Presse médicale*, December 3, 1914) describes a procedure carried out successfully by Martel for the extraction of a shrapnel bullet from the left cerebellar lobe. Anesthesia was induced locally by endermic and subcutaneous injection of a solution of epinephrine in conjunction with a commonly employed proprietary analgesic drug. To expose the field of operation a quadrilateral flap with base below was raised as far as the posterior margin of the occipital foramen. An opening fourteen mm. in diameter was then made in the squamous portion of the occipital bone, the left half of which was easily and rapidly destroyed. The sinus having been exposed above, the exact location of the occipital crest and midline was ascertained and the dura mater incised vertically at a distance of one cm. from the midline. Hernia of the brain tissue then took place, and incision into this hernia opened an abscess in the centre of which the shrapnel bullet was found. Drainage was established and a dressing applied. Improvement immediately followed the operation. The advantages of the procedure are stated as having been, 1, the very favorable position of the patient during operation—sitting upon a chair with his arms resting on its back and his head firmly planted on his arms; 2, the absence of hemorrhage; and, 3, the avoidance of all malaise and vomiting after operation.

Treatment of Pemphigus.—Von Leszczynski, in *Zentralblatt für innere Medizin* for December 12, 1914, is reported to have administered fifteen grains (one gram) of a quinine salt in 250 c. c. of physiological salt solution intravenously in cases of pemphigus, with a clearly favorable effect in all instances.

Use of Coal-tar in the Treatment of Eczema.—G. Thibierge, in *Progrès médical* for April 11, 1914, is stated to have pointed out the especial value of coal-tar in the treatment of certain varieties of eczema—those with considerable weeping and edema. The greater the local moisture and acuteness, the greater the likelihood of rapid and favorable results.

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HONORING THE MEMORY OF A NEW
YORK PHYSICIAN AND POET.

Saturday, May 29th, the ninety-sixth anniversary of the first publication of the characteristically American poem, *The American Flag*, was a notable day in the borough of the Bronx, where there was a triple celebration in honor of the author, Joseph Rodman Drake. There were memorial services under the auspices of the Bronx Society of Arts and Sciences. Among the addresses at Morris High School was one by Charles de Kay, a grandson of Drake. Other services of the day consisted of the unveiling, by two great granddaughters of the poet, of bronze tablets at his grave at Hunt's Point, where a national salute to the flag was fired by an artillery battery, and in the picturesque gorge in Bronx Park, near which, at the old Lorillard Mansion, there was an exhibition of works by and relating to Drake.

Drake died at too early an age—only twenty-five years—to have won distinction as a physician, but from the general talent he displayed when a student at Columbia College, it is not unlikely, had his life been spared, that he would have made his mark in the profession. In the matter of poetical composition, however, he was precocious, like Keats, who was born the same year. He began to write verses

when very young, and was a contributor to several gazettes before he was sixteen years old. In his shorter poems, such as the *Bronx*, and in his one long work, the *Culprit Fay*, which exhibits fancy and taste, there is displayed the most profound love for and intimate knowledge of Nature. Writing before Washington Irving and Cooper, he was the first to do justice to American scenery, and it is recorded that it was owing to bantering remarks by a little group of friends at Cold Spring, on the Hudson, among whom was Cooper himself, to the effect that, on account of the lack of association connected with our scenery, unlike that of Europe, there was nothing in it to excite inspiration, that the *Culprit Fay* came to be written. All Drake's poems, indeed, seem to have been inspired by some special event or object attracting his attention. He was of a warmly social and genial disposition, and not less pleasing was his remarkable modesty. The *Culprit Fay*, which was not published until a number of years after his death, has been called the American *Æneid*, and as Virgil is said to have requested that the *Æneid* should be burned with his body, so Drake, on his deathbed, asked that this and his other manuscripts should be destroyed. It is greatly to its credit that the Bronx Society of Arts and Sciences, which saved Poe's cottage at Fordham, should also have been instrumental in preserving from vandalism the last resting place of this gifted son of New York, and it is fitting that the city, in order to perpetuate his memory, should have established at the site of his grave, the Joseph Rodman Drake Park. On the tablet here is inscribed Fitz-Greene Halleck's touching eulogy:

Green be the turf above thee,
Friend of my better days;
None knew thee but to love thee,
Nor named thee but to praise.

THE PLAGUE SITUATION.

In a recent number of *Public Health Reports*, Rucker discusses briefly the geographical distribution of plague and its menace to the United States. This is only one of many voices crying in the wilderness and urging preparation against a formidable foe; our experiences at San Francisco and New Orleans are full evidence of the reality of the menace. Among all the epidemic diseases whose invasion we may have cause to fear, plague is given first place by sanitarians. It is a dangerous antagonist, both in the gravity of its manifestations and in the difficulty and expense attending its eradication. To prevent its introduction is a problem of greater ease, but unfortunately of large expenditure.

Plague is primarily a disease of rodents and

reaches man secondarily by means of the flea. It differs from most of the insect borne diseases in one important particular, due to the habits of the rat. The rat is a great traveler and carries both the disease and the insect host. We should be prepared to meet this visitor on arrival and refuse admission to so unwelcome and dangerous a guest.

Plague in rats may be acute or chronic. This latter condition permits perpetuation and transportation of the disease from one port to another. Rucker thinks that many ports, even some of our own, may now harbor, unknown, this infection among the rat population. Careful rodent surveys, he states, have been made in only three of our ports, and these three were found infected. Such a statement is disquieting, and should command the attention of local health authorities; proper surveys now might save much trouble and expense in the future.

Rucker lays great stress on the impossibility of excluding plague by any maritime quarantine ever devised by man, except at the price of ruinous interference with commerce. The prevention at our wharves of the "embarkation and disembarkation of rodents" is, he thinks, a valuable measure, but one of limited usefulness. The immunization of our population by vaccination is manifestly out of the question. The only sure means lies in rat proofing the environment in which man lives and works. Sanitarians are in universal agreement as to this point. The first cost is large, but the cost of fighting the disease, once it is introduced, as at San Francisco and at New Orleans, is still larger. Upward of \$400,000 have already been expended at New Orleans, and the fight is by no means finished. If the wharves and water fronts of our ports were of rat proof construction, the menace of plague would be reduced to a minimum. The statement may be ventured that few, if any, are now in such condition. Letton, a sanitary engineer of the Public Health Service, has estimated that the five miles of docks at New Orleans might be satisfactorily rat proofed, that is by new construction, for a little upward of \$800,000; this gives some idea of what such construction would cost in all of our ports. The aggregate sum might suffice perhaps to build another Panama canal, but the price, huge as it is, would be not only well spent, but doubtless economically spent as well.

In the present European war the world has certainly had a vivid illustration of what preparation or lack of it means in war; and this lesson may be easily applied to campaigns against epidemic disease. The repeated warnings against the menace of plague uttered by so many of our sanitarians will forbid excuses and pleas of ignorance when the calamity comes.

THE HEALTH OF AMERICAN CHILDREN.

Recent articles in the *JOURNAL* afford instances of the admirable effects of sanitary science. Constant vigilance is required to preserve the public health in a large city, and these reports of the progress of hygiene show how needful it is to watch carefully over even small hygienic errors in human life when these errors take place amid a great agglomeration of human beings. Our contributors have a keen idea of the evils of which we are speaking, and remedies they suggest go far to restrict the child or parent who violates the rules of health, from causing nuisance and mischief to their immediate neighbors.

Naturally we are glad to have evidence of progress from officials skilled in sanitary science, who know most of what goes on among the people. The danger from the accumulation of dirt and germs, from infectious diseases, is lessened, the death rate is lower, care is taken that the eyes and teeth of children are examined and ministered to, if diseased, the effect of noxious trades is diminished, and the result is that New York of today forms a pleasing contrast to the New York of former times. It is fair to conjecture that New York may be greatly improved by attention to some evils which affect the health of children and parents in a reciprocal manner, for these are evils which act and react upon the health in unseen ways. It must be remembered, in speaking of unseen evils, that in a great city everything has to be made outwardly decorous. This in many respects is a good thing, yet it is often an immense disadvantage. The evil we can see, we can guard against, hence we have been successful in avoiding many diseases; but who, in a great city, can estimate the evils of crowded trains, schools, and theatres? Who knows the pitfalls, as it were, of moral disease, which are waiting for his finer senses in the practice of herding together in subways and elevated cars?

Another evil of great cities is noise. It is probable that this cause of human suffering meets with less sympathy or regard from those who do not suffer from it, than disease itself. With regard to children, the boy or girl of hard, well strung, healthy nerves is unable to imagine the keen distress which children of sensitive nerves endure from ill regulated noise—how they quiver and shiver under it. In New York, the noise is varied, abundant, and dreadfully discordant, so that the child of acute sensibility undergoes a nervous exhaustion which is marked by pallor and the symptoms of mental disease caused by this social pressure. This is one reason why American children appear to the traveler so much less robust and phlegmatic than European children. In Europe there is less noise, and in cities like London, where it is oppressive, it is more regulated,

and in Germany there are strict laws to govern the multifarious sounds of motor horns and other means of torture.

Another branch of the subject is the very important one of open spaces where children may have games. New York is poor in the extent and variety of its open spaces, and the parks are far off, and must be reached by the subway or elevated roads. The health of children would be much improved if New York had within its boundaries more large gardens and open squares. But such an improvement is hopeless. Breaks of continuity within the city must be closed with skyscrapers or buildings for business purposes. The result is that the homes of most people must be looked upon as places for pleasure—if not for business and domestic avocations, and the child is fortunate who has a nook or cranny in one of our apartment houses to play in.

SYPHILIS AS A PUBLIC MENACE.

At one time it was deemed indelicate to make any public mention of venereal diseases; the consequence was that the general public was ignorant of the dangers run by the individual and race by the contraction and dissemination of these diseases, and especially of the menace of syphilis. Fortunately more common sense views now prevail, at least they prevail in this country, and a widespread campaign has been inaugurated to teach the people the nature of syphilis and how to avoid it and prevent its spread. Women, as well as men, are taking part in the campaign, and it is eminently fitting that they should take part, as they are most frequently the innocent sufferers and the most fertile means of its dissemination.

The *Monthly Bulletin* for March of the New York health department is devoted to a consideration of syphilis, written by Dr. Horace Greeley, of the Bureau of Public Health Education. According to available statistics which are not altogether to be relied upon, one tenth of the adult population of New York city is infected with syphilis.

Mortality rates of syphilis are likewise notoriously inaccurate. Osler says: "We may place the mortality from syphilis at between 6,000 and 7,000 annually in the United States, about one in eighty of the deaths, not taking into account the unestimated and very large number of stillbirths. In about one seventh of the cases the deaths are due to what we regard as the more direct effects of the disease. Aneurysm and the enormous group of affections of the nervous system represent later but none the less definite effects of the poison." Greeley estimates that the death rate of New York city from syphilis on the basis of the deaths recorded as specifically due

thereto would be a little over one in 10,000 living, but he points out that a large proportion of the deaths listed from the various diseases of the circulatory system and some of those from chronic kidney disease, liver disease, etc., must be primarily due to syphilis, as well as all those ascribed to paresis and locomotor ataxia. Moreover, syphilis is the recognized most common cause of natural abortion and miscarriage, and is thus additionally responsible for large inroads upon the population, of the extent of which, however, no trustworthy figures can be at present obtained.

As for the modes of transmission, they are various. Public prostitutes are responsible for seventy-five per cent. of all the cases of syphilis in New York. In general, innocent infection may occur through marital relations; Bulkeley, of New York, found that eighty-five per cent. of all syphilitic married women seen by him in private practice had acquired the disease in this way, and the experience of other authorities tallies in the main with that of Bulkeley. As for congenitally acquired syphilis, there are no figures available to show its prevalence. Syphilis is sometimes accidentally acquired by wet nursing, promiscuous kissing, unintentional scratching, and by the use of infected objects. Finally, statistics show that of all cases of syphilis about five per cent. are acquired through infection entering at some point other than the genital organs.

That syphilis is a public menace of the most grave character has long been obvious even to a discerning layman. It is a misfortune that Anglo-Saxon prudishness has prevented the realization of the matter by the public. In order to stamp out syphilis or even to curb or scotch its spread, the public must earnestly cooperate with the medical profession in inaugurating and putting into force measures of prevention. But that this desirable end may be reached, the public must be educated by the medical profession. The campaign against cancer is proceeding along these lines, and a campaign against syphilis, a more deadly and dangerous disease from all standpoints, is even more urgently called for. A beginning has been made in this direction and it should be continued persistently but with discretion. The New York board of health is doing sturdy service in the fight against syphilis, and deserves the moral support and cooperation of every intelligent citizen.

THE POPULAR USE OF PURGATIVES.

At a meeting of the Bradford (Eng.) Medico-surgical Society, according to the *Lancet* for April 10, 1915, Dr. H. J. Campbell drew attention to the numerous drugs now on the market that are used indiscriminately as purgatives by the public, who seem to think that any drug credited with an

action on the bowels is suitable for any and every case. He reviewed shortly the action of the different purgatives and explained the principles guiding selection of a certain drug for a particular case. Broadly speaking, he said, purgatives could be divided into vegetable and mineral, the former being more generally useful in early life and the latter after middle age. The vegetable drugs acted on a normal bowel and all along the bowel. There was no absorption, their action being entirely on the epithelial cell. The mineral drugs, on the other hand, acted on a bowel more or less overloaded with food and exerted their influence on the vessels, the action being that of bleeding the patient into his own bowel. Great care and discrimination were required in the use of purgatives, and much harm was being done by the increasing abuse of them, which is growing to such an alarming extent among the public.

A PROPOSED TRIBUTE TO THE LATE MADAME DEPAGE.

Both the *British Medical Journal* and the *Lancet* for May 22, 1915, remark editorially that it is felt that the tragic death of Madame Depage, on board the *Lusitania*, should not be allowed to pass without some demonstration of the admiration that is felt for her character and of sorrow for her tragic fate while engaged on an errand of mercy. Madame Depage had many friends who were deeply attached to her both in England and in the United States, and it is thought that they might like to give expression to their feelings by subscribing to a small bronze memorial to be placed in the Depage Hospital at Brussels after the war. The memorial might be executed by some of the distressed Belgian art metal workers who are now in exile. Subscriptions will be gladly received by Mr. Robert Jones, 11 Nelson Street, Liverpool; by Mr. D'Arcy Power, 10A Chandos Street, Cavendish Square, London; or by Professor Sinclair White, Ranmoor, Sheffield.

News Items.

Long Island State Hospital for the Insane, Brooklyn.—Governor Whitman has signed a legislative appropriation permitting the State Hospital Commission to enter into contracts for additional quarters for patients at this institution to the amount of \$400,000, of which \$200,000 is available at once.

A Department of Social Hygiene at Johns Hopkins Hospital.—Announcement is made of a gift of \$16,500 to Johns Hopkins Hospital by Mr. John D. Rockefeller, Jr., to be used for the establishment of a social hygiene clinic at the hospital. A committee has been appointed to take charge of the work, consisting of the following members: Dr. George H. Walker, chairman, Dr. Theodore C. Janeway, and Dr. Winford H. Smith, superintendent of the institution. Dr. Albert Keiden will have charge of the new dispensary.

Columbia Students to Aid Red Cross Work in Serbia.—Twenty-five undergraduates of Columbia University, some of them from the medical department, have volunteered to go to Serbia for the summer months as an auxiliary Red Cross Society to aid in caring for the wounded and refugees and the transfer of supplies. Headquarters will be at Nish, and the men will be at the disposal of the authorities. The equipment consists of twenty-five automobiles, a complete field equipment with tents, field hospitals, etc., and an abundance of hospital supplies. The plan was originated by Professor Pupin, a member of the faculty of Columbia University, a Servian by birth. The party will sail on or about June 15th for Salonika.

Contributions to the Belgian Relief Fund.—The report of the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession for the week ending May 29th includes a contribution of \$10 from Dr. J. E. Talley, of Philadelphia, and one of \$5 from Dr. Leonard W. Ely, of Palo Alto, Cal. The total amount received by this committee up to date is \$7,008.50.

The American Medico-Pharmaceutical League held its eighteenth annual meeting at the Hotel Astor, New York, on the evening of May 24th. It was reported by the corresponding secretary, Dr. Samuel F. Brothers, of Brooklyn, that 510 new members had been added to the league during the past twenty-five months. Officers for the ensuing year were nominated.

American Ambulances at the Front.—*Paris médical* for May 8, 1915, notes that recently at the Hôtel des Invalides a number of fully equipped ambulances were presented to the Minister of War by some American friends. Our contemporary remarks that these vehicles are "marvellously furnished, and are driven by young Americans, some of whom belong to the most notable families of the great Republic."

The Mayo Foundation.—When the final contract between the University of Minnesota and the Mayo Foundation, of Rochester, Minn., is drawn, it will provide for a straight endowment whereby the university will come into possession of a fund of \$2,000,000 or more and excellent equipment for medical research. The foundation will be ready to begin work when the University of Minnesota opens in September.

Illinois State Medical Society.—At the sixty-fifth annual meeting of this society held in Springfield during the week of May 17th, the following officers were elected: Dr. Charles W. Lillie, of East St. Louis, elected in 1914, to succeed Dr. A. L. Brittin, of Athens, as president; Dr. William L. Noble, of Chicago, president-elect, to take office in 1916; Dr. F. S. O'Hara, of Springfield, first vice-president; Dr. H. P. Bierne, of Quincy, second vice-president; Dr. A. J. Markley, of Belvidere, treasurer; Dr. W. H. Gilmore, of Mount Vernon, secretary.

Commencement Exercises at Columbia University were held during the past week. On Wednesday, June 2d, more than 2,000 degrees were conferred, a number which passes all former records at the university. The classes in all departments have been unusually large. Eight men of prominence received honorary degrees, and the degree of doctor of laws was conferred upon Miss Louisa Lee Schuyler, founder of the State Charities Aid Association and the originator of the first American Training School for Nurses. This is the first time in the history of the institution that the degree of LL. D. has been given to a woman.

The New Willard Parker Staff House.—A contract for the erection of a medical staff house and nurses' home for the Willard Parker Hospital has been awarded and the work has been started. This building, covering an area of 100 by 83 feet, will be situated on the south side of Sixteenth Street just west of Avenue D. It will be of concrete fireproof construction, seven stories high above the basement, and will furnish quarters for thirty-five doctors and 115 nurses, each group having separate entrance, halls, stairs, dining rooms, etc., complete. It has been the aim of the architect to accentuate the provision for light and air, and to make the mechanical equipment as perfect as a moderate outlay would permit; the structure will harmonize with the building on the same square, its exterior being enlivened by the introduction of colored tile inlaid in the cement coating.

An American Sanitary Association at the Château de Passy (Yvonne).—A unit organized at the French Hospital, New York, has been installed at the Château de Passy, now owned by Mrs. Fitzgerald. It includes five physicians, Dr. Joseph L. Wheelwright, Dr. T. C. Walker, Dr. W. G. Braddock, Dr. A. O. Jemenis, Dr. John S. Irwin, beside Dr. Percy R. Turnure, as hospital director; and ten nurses, Miss Alma Marie McCormick, superintendent, and the Misses Dorothy O'Connell, Eugenia H. Lyons, Victoria Frankfort, Florence Gordon, Eileen O'Hanlon, Kathleen O'Hanlon, Mollie McGrath, Nellie Burdette Parsons, and Beda Laurentia Peterson. According to *Paris médical* for May 8, 1915, this unit, supported by Mrs. Fitzgerald and a few friends, has brought over, among other things, 100 iron beds, a complete outfit for an operating room, an x ray apparatus, four tons of absorbent cotton, etc.

The Connecticut State Medical Society.—At the annual meeting of this society, held in Hartford on Wednesday and Thursday, May 19th and 20th, it was decided to hold next year's meeting in Bridgeport the third Wednesday and Thursday in May, departing from the custom since the organization of the society in 1792 of holding annual meetings alternately in Hartford and New Haven. Officers were elected as follows: President, Dr. Max Mailhouse, of New Haven; vice-presidents, Dr. Charles B. Graves, of New London, and Dr. C. A. Sears, of Portland; secretary, Dr. Melvin McR. Scarborough, of New Haven; treasurer, Dr. Joseph H. Townsend, of New Haven. Dr. Stephen J. Maher, of New Haven, presided.

Philadelphia Physicians to Go to the Front.—Philadelphia's volunteer contingent for three months' service in the American Ambulance Hospital at Paris at present includes eight physicians (paying their own way), three registered nurses, and one anesthetist. Funds up to \$10,000 are now being collected for the expedition. The Philadelphia physicians who will serve during July, August and September are Dr. James P. Hutchinson, Dr. Daniel J. McCarthy, Dr. Edmund B. Piper, Dr. Walter Estell Lee, Dr. Arthur E. Billings, Dr. Peter McCall Keating, Dr. Samuel Goldschmidt, and Dr. J. William White. Another contingent is being organized by Mr. William Potter, just returned from the war front.

Hospital Physicians Organize to Study Infectious Diseases.—The assistant attending physicians of the Willard Parker, Riverside, and Kingston Avenue Hospitals have organized the Society for the Study of Infectious Diseases. The active membership is composed of the assistant visiting physicians and those who have previously held such positions. The honorary membership is made up of the members of the medical board and such others as may be invited by the society. Meetings will be held at the department hospital and such other places as may serve the convenience of the society. The first meeting, which was held at the Willard Parker Hospital on May 4th, was devoted to arthritis complicating scarlet fever.

The American Association of Medical Jurisprudence held its third annual meeting at Long Beach, L. I., on Saturday, May 10, Charles A. Boston, Esq., of New York, presiding. An interesting program was presented. Among the papers read were the following: Legislative Lies, by Dr. Reynold Webb Wilcox; Criminal Responsibility, by Dr. Philip Coombs Knapp, of New York; Moral Insanity, by Dr. Arthur C. Brush, of Brooklyn; Pharmacopœial and Proprietary Remedies in their Medicolegal Aspects, by Dr. H. Sheridan Baketel; Cardiovascular Disease in Relation to Medical Jurisprudence, by Dr. Louis Faugères Bishop. A banquet at the Hotel Trouville brought the meeting to a close. Officers to serve for the ensuing year were elected as follows: President, Dr. D. Percy Hickling, of Washington, D. C., formerly second vice-president; first vice-president, Oscar W. Ehrhorn, Esq., of New York (re-elected); second vice-president, Dr. Philip Coombs Knapp, of Boston; secretary, Charles P. Blaney, Esq., of New York (re-elected); treasurer, John C. West, Esq., of New York; members of the council, Dr. Reynold Webb Wilcox, of New York, and Dr. Donald D. MacTaggart, McGill University, Montreal.

The Army Medical School.—The closing exercises for the session of 1914-1915 were held at the school, Washington, D. C., on Tuesday, June 1st. Dr. Reynold W. Wilcox, of New York, first lieutenant in the Medical Reserve Corps of the Army, delivered the address, and the Honorable Lindley M. Garrison, Secretary of War, presented the diplomas to the thirteen members of the graduating class. Colonel John Van R. Hoff, United States Army, retired, presented the Hoff Memorial Medal to First Lieutenant Harry D. Offutt, Medical Reserve Corps, of Maryland, the honor graduate of the class. First Lieutenant Raymond E. Scott, Medical Reserve Corps, of Missouri, received the Sternberg medal, which was presented by First Lieutenant Richard Slee, Medical Reserve Corps, of Swiftwater, Pa. The other members of the graduating class were First Lieutenants Grover C. Buntin, of Illinois; George D. Chunn, of Arkansas; Frank H. Dixon, of Indiana; Rufus H. Hagood, Jr., of Alabama; Robert DuR. Harden, of Georgia; William D. Heaton, of Nebraska; David D. Hogan, of Wisconsin; Augustus B. Jones, of Georgia; Herman G. Maul, of Colorado; Charles M. O'Connor, Jr., of Virginia, and Lloyd E. Tefft, of New York.

Call for Volunteers to Study Occupational Diseases.—An unusual opportunity to do research work in the study of occupational diseases is now offered in the Occupational Clinic of the Department of Health recently established at 49 Lafayette Street, New York. This clinic, though not yet fully equipped, already possesses the most important accessories for scientific clinical work. Those to whom this opportunity makes an appeal, should make application in writing to the Director of the Bureau of Preventable Diseases, Department of Health, New York City, stating their clinical experience.

Summer Courses in Anatomy at the University of Pittsburgh.—The department of anatomy of the School of Medicine, University of Pittsburgh, has arranged a number of special courses in anatomy to be given during the coming summer, from July 5th to August 28th inclusive. These courses are designed principally for physicians in the Pittsburgh district, but will be open to properly qualified medical students. A leaflet giving full particulars regarding these courses has been prepared by the department, and those interested may obtain copies by addressing the secretary of the School of Medicine, Dr. E. Dexter Pool. Applications must be received on or before June 15th, and no courses will be given unless at least ten applications have been received.

Health Department Reports a Low Death Rate.—There were 1,449 deaths and a rate of 13.02 reported in New York during the past week against 1,547 deaths and a rate of 14.45 during the corresponding week in 1914. Scarlet fever, typhoid fever, diphtheria and croup, diarrheal diseases, organic heart diseases, acute bronchitis, lobar pneumonia, pulmonary tuberculosis, diseases of the nervous system, and deaths from violence all showed considerably decreased mortalities. There were only a few diseases which showed an increased mortality, among them measles and whooping cough, but the increase in each instance was exceedingly small. The death rate for the first twenty-two weeks of 1915 was 14.51 per 1,000 of the population compared with the rate of 15.29 in the corresponding period of 1914, a decrease of 0.78 point.

The Death of Dr. Edward S. Peck.—At a meeting of the Northwestern Medical and Surgical Society, of New York, held on the evening of April 21, 1915, the following resolution was adopted:

It is the painful duty of your committee to report the death on March 25, 1915, of Edward Sprague Peck, M.D., a faithful and active member of the Northwestern Medical and Surgical Society for thirty-two years. In the death of Doctor Peck the society has lost a member who always contributed to the interest and value of its discussions, and by his geniality and comradeship made all the members his personal friends.

His work in his specialty, ophthalmology, was of such a high order and his experience so extensive that he invariably impressed everyone who heard him with his enthusiasm and ability.

Every position of responsibility to which he was assigned was filled with assiduity, careful attention, and exactness.

We wish to record our feeling of personal loss and extend to Mrs. Peck and the other members of the family our sincere sympathy and condolence in their bereavement.

RICHARD KALISH, ARTHUR M. JACOBUS, and SAMUEL LLOYD, *Committee.*

The New Medical Centre on Washington Heights.—It is announced that \$14,500,000 will be required to carry out the plans of Columbia University and the Presbyterian Hospital to establish a great medical centre on Washington Heights. Of this amount the part that Columbia is to take in the enterprise calls for \$7,500,000, and an endowment of \$4,000,000 will be sought by the university. The plan calls for the immediate erection of a building for administration, a building to house the medical sciences, the Crocker Cancer Research laboratories, and a school of sanitary science and public health, a building to house the hospital, with capacity of 1,200 patients; a building for the Vanderbilt Clinic, to serve also as the out patient department of the hospital; dormitories for 400 medical students, with dining hall for students and instructors, and a building to house a training school for nurses and to serve as the nurses' home. The plan also provides space for a possible building for the Sloane Hospital. A considerable part of the area is to be left for future institutes or foundations which may affiliate themselves with the hospital and the university. The Presbyterian Hospital has an accumulated property valued at about \$7,000,000, and if this is applied to the development of the new site, \$1,000,000 will go for land, \$3,000,000 for construction, and \$3,000,000 for endowment.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT

January 25, 1915.

Action of Maternal and Fetal Human Serums on Trypanosomes, by Felix Rosenthal and Erich Kleemann.—Laveran and Mensil showed that human serum was capable of causing a temporary cure of trypanosomiasis in rats and mice, and on the basis of this observation the present authors sought to study the transference of antibodies from the maternal to the fetal circulation. They found that maternal human serum would prevent the development of infection in mice, and if given after infection would temporarily cause the trypanosomes to disappear from the animal's blood. They made more or less quantitative determinations of the amount of serum required for the production of these effects and then compared these amounts of maternal serum with similar amounts of fetal serum obtained from the placenta and umbilical cords of the children at birth. From a considerable number of experiments they found that there were only very small amounts of antibodies in fetal serum, even at full term, while the antibody content of the maternal serum rose as pregnancy progressed so that this was quite high by the end of term. There was no evidence that the antibodies had been directly transferred from the mother to the infant, and the conclusion seems that at birth the child lags far behind its mother in protective substances of this character.

Cavernous Pulmonary Tuberculosis in a Nursing, by H. Bergmann.—The case of an infant, the offspring of a tuberculous mother, is reported, in which the child died on the eighty-second day of life with pulmonary tuberculosis. Cavities were found in the upper portion of the right lower lobe and the lower portion of the left upper, the rest of the lungs showing miliary tuberculosis. The infant was artificially fed from birth, and it is thought that the infection probably took place via the placenta. This case is made the subject of a discussion of the reason for the occurrence of tuberculosis in so young an infant and of the reason for the site of the cavities in the lungs. The author concludes that both sites are attacked in such cases on account of the greater motility of the lungs. The reverse of this holds for the adult lungs, in which case the role of relative lack of oxidation is of greater importance, as protective substances suffice to guard the other tissues and adequate oxidation protects the remainder of the lungs. The same factor of continuous movement also explains the occurrence of intestinal and joint lesions.

February 1, 1915.

Significance of Latent Infection in Surgery, by Eduard Melchior.—Beginning with the fate of the organisms present in the tissues in cases of primary union, Melchior offers evidence that in a certain proportion some organisms remain in the wound in a resting condition, from which they can be awakened by subsequent trauma or intercurrent disease. This would account for late secondary suppuration in wounds which had healed by first intention. The same explanation is invoked in cases of late second-

dary stitch abscesses, delayed suppuration about retained foreign bodies, healed fractures, and old scars. Late abscesses after appendicectomy, and delayed cases of tetanus (which may not appear until years after the original wound in some cases) also rest upon the same basis. It is not requisite, however, to have a healed lesion for the subsequent development of abscesses through the lighting up of latent foci of resting bacteria, for the cases of suppuration after typhoid, the so called chronic pyemia after osteomyelitis, recurrent thrombophlebitis, and intermittent arthritides are all due to the return to activity of resting living organisms. The precise mechanisms involved in perpetuating the living organisms in these latent or resting states are not understood, but it is well known that anything which leads either to local reduction in the vitality of the part, or to the diminution in the general resisting powers of the body may lead to the renewed activity of such foci. So far we have no way of preventing the passage of potentially active organisms into the resting state in the tissues.

Gastric Examination through Secretion Curves, by Skaller.—Attention is directed to the fact that the simple determination of the degree of acidity of the gastric contents after a test meal is largely vitiated by many uncontrollable factors, among which one of the most important is the motility of the organ. Pavloff also showed that the various substances introduced into the stomach were retained there in layers relatively unmixed. Skaller suggests that the function of the stomach may best be studied without the disturbing influence of these factors by means of plotting the curve of its secretion in response to a stimulant. A special duodenal tube is passed into the stomach, where it is retained throughout the examination. A sample of the gastric juice is secured and its acidity determined. Then a solution of five grains of Liebig's beef extract in 200 c. c. of water is given and samples are withdrawn from the stomach every five minutes and their acidity determined. In order to determine the motility, a small amount of phenolphthalein solution is added to the fluid given, and when this disappears from the samples the original fluid introduced has been passed out of the organ. The samples can also be tested to determine the amount of mucus present. Delayed, prolonged, diminished, and excessive secretion are all readily determined and measured by this method, in addition to the determination of the gastric motility. The procedure is simple and is no more uncomfortable for the patient than is the passage of the ordinary stomach tube.

WIENER KLINISCHE WOCHENSCHRIFT.

April 20, 1915.

Complement Fixation in Variola, by Artur von Kouschegg.—In variola the worth of an antigen depends on its content of living virus. The contents of pustules, an extract of the scales and alcoholic extracts of the liver and spleen of a child dead of variola have been used as antigen. The best reactions are obtained with the extract of the scales, the alcoholic extracts of the liver and spleen giving no reactions at all. The method of preparing the antigen from the scales is as follows: The scales are ground up in ten times their volume of physiological

salt solution and the emulsion is centrifugated for twenty minutes. The supernatant fluid is drawn off and shaken up with an equal amount of ether for a period of twenty-four hours. The ether is then removed by a steaming process in a vacuum and the remaining clear fluid is placed in sterile pipettes, together with alcohol in the proportion of 0.5 c. c. alcohol to twenty c. c. of fluid. The pipettes are sealed and placed in a thermostat and at the end of twenty-four hours there is a marked precipitate. The fluid is sterile and clear. This form of antigen has been used in a series of forty cases of variola and gave a positive reaction in every instance.

Fecal Phlegmon and Abscess after Shrapnel Wounds of the Abdomen, by Victor Karl Irk.—Two cases are reported in which a fecal abscess followed a perforating wound of the intestine. In one case the opening into the intestine was palpable. Liberal incisions were made from the skin down to this opening and rubber tissue drains were inserted to drain off the stool. Alongside of this opening an abscess cavity formed which was opened and drained in the same way. In the convalescence a fistula persisted for about seven weeks, at the end of which time it closed. The second case is of interest because a phlegmon occurred posteriorly to the left of the second and third lumbar vertebrae. The shrapnel had entered anteriorly about four fingers' breadth below the left anterior superior spine. Both anterior and posterior wounds were laid open and drained with rubber tissue drains. The posterior wound opened into a retroperitoneal fecal abscess. The posterior fistula closed at the end of the third month, at which time there was still a slight amount of discharge (no longer fecal) through the anterior fistula. The placing of the patient in a permanent water bath is of great value in these cases, as the matter of keeping the wound clean is greatly simplified and the danger of bed-sores is avoided.

Arterial Suture in Aneurysm, by H. von Haberer.—A series of forty-three aneurysms observed during the course of the present war is recorded. In twenty-nine cases the artery was tied and in thirteen sutured. The arteries affected include the subclavian, the brachial, the femoral and deep femoral, the internal maxillary and the temporal. Aneurysms of the subclavian and brachial are frequently complicated by paralysis due to the injury to the neighboring nerves. Some of the cases are infected and it is rather risky to perform circular suture, ligature of the artery being preferred in these cases. One of the cases reported did not come to operation until six and one half months after the injury, which caused the aneurysm, had been received. The case in question was an aneurysm of the anterior tibial; the operation which under ordinary circumstances would have been simple was rendered exceptionally difficult because of the dense adhesions which had formed.

ZENTRALBLATT FÜR GYNÄKOLOGIE.

March, 1915.

Extraperitoneal Implantation of the Tubes as a Method of Sterilization, by Stoeckel.—Sterilization should not be employed except in instances in which pregnancy would threaten the mother's

life. Ovarian castration is ruled out on account of the evident advantage of retaining organs that manufacture an important internal secretion. As a simple tying off of the tube is not sufficient, Stoeckel employs the following method. He exposes the inguinal canal according to the Alexander-Adams operation with an opening in the peritoneum. The tube is lifted out of the canal and imbedded extraperitoneally between the abdominal muscle and the anterior abdominal fascia.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

March 30, 1915.

Pathogenesis and Prophylaxis of Anal Fistula, by Paul Reynier.—Anal fistula is often associated with tuberculosis caused in nearly all instances by swallowing sputum. In only six of sixty-seven cases of anal fistula was the author unable definitely to affirm the existence of pulmonary or laryngeal tuberculosis, either incipient or in the open stage. Fistulae forming in the presence of open tuberculosis were observed to be much more refractory to treatment than others. Frequently, the fistulae occurred as the first manifest sign of tuberculosis in individuals still apparently in good health; upon auscultation and careful inquiry evidence of a concomitant and even preexisting lung tuberculosis was found. Thus, among the sixty-seven cases, twenty instances were found in which fistula led to the discovery of incipient tuberculosis. Sixty-one patients admitted that they swallowed their sputum. This suggests strongly that failure to spit is a cause of fistula. Patients should be warned against the dangers of swallowing sputum.

Special Sense Disturbances in Wounds of the Head, by Edmond Delorme.—In nearly 200 cases of head injury by military projectiles visual disturbances were associated more frequently than mental disturbances or sensory motor phenomena in the extremities. If vision remains good in one eye, the involvement of the other is frequently overlooked, by the patient himself and by the attendants. Such visual disturbances appeared independently of the portion of the brain injured, and commonly consisted in reduced acuity of vision, with or without concentric narrowing of the visual field. Ophthalmoscopic examination occasionally revealed, in the severe cases, optic atrophy or evidences of capillary stasis. Where the visual deficiency had appeared just after the injury and was of slight degree, it often disappeared rather quickly. Auditory disturbances, comprising partial deafness, tinnitus, and occasionally vertigo, were also frequently noted, though less often than the disturbances of sight.

Latent Wounds of the Brachial Artery, by O. Laurent.—In the course of forty-two operations in cases of nerve injury, sustained four to seven months before, the main artery of the limb—nearly always the brachial—was found to have been traumatized in eight instances. In four cases it had become completely occluded. Severe trophic and circulatory disturbances in limbs with injured nerve trunks are ascribed in part to such actual lesions of the arteries. In the examination of old nerve wounds of the arm, especially involving the ulnar and median nerves, comparison of the pulse on the

two sides is considered always advisable, to detect arterial injury where it exists. The left radial pulse commonly was found deficient. In all operations on nerves in the arm the main arteries should be examined.

RIFORMA MEDICA.

May 8, 1915.

Dysentery, by M. Ascoli.—There are two well recognized forms of the disease, the amebic and the bacterial. The treatment of the amebic type has been simplified by the introduction of the use of emetine. It is used hypodermically in the dose of 0.02 to 0.04 gram on the first day, and the dose increased up to 0.15 gram given at intervals of two or three days. At the same time intravenous injections are given beginning with 0.01 gram in 150 c. c. water, increasing up to 0.06 gram. The bacillary type is caused by the bacilli of Celli and of Flexner. This is the form of the disease found in epidemics. There is also a sporadic form of the disease in which neither amebæ nor bacilli can be made out. The treatment of the bacillary form is not very satisfactory, and consists of the use of calomel, castor oil, and sulphate of sodium, with enteroclysis of large quantities of tepid antiseptic solutions at low pressure, and intravenous injections of hypertonic solutions of sodium chloride. The diet is light in the mild cases; in the severe cases tea, hydrochloric acid lemonade, sago, arrow root are given. Venesection seems to produce marvelous effects in apparently hopeless cases.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

April 28, 1915.

Tendon Reflexes in Psychoneuroses, by Fernandez Sanz.—Many authorities state that there can be no alteration of reflexes in functional nervous diseases, but that, on the other hand, any condition accompanied by change in the reflexes must be organic in origin and nature. Sanz maintains that in twenty-five per cent. of cases of true hysteria there is exaggeration of the tendon reflexes. An exhaustive review of the literature seems to justify the following conclusions: In psychoneuroses the tendon and bony reflexes are normal or uniformly slightly exaggerated. The psychoneurosis in which is seen most frequently such reflex increase is neurasthenia, where it is almost constant; in hysteria it is less common, and in psychasthenia it is exceptional. In hysteria there is never intense nor unilateral exaggeration of the deep reflexes, neither is there ever abolition of reflexes nor true ankle clonus.

SEMANA MÉDICA.

April 8, 1915.

Antidiphtheritic Vaccination, by D. Thamm.—From experiments on animals it is demonstrated that a pure bacillary vaccine has the power of rendering animals refractory or immune to an injection of a culture of Löffler's bacillus sufficient to kill such animals when not so protected. In thirty-four injections in normal human subjects of from two to thirty-five years of age, there was neither local nor general reaction, and only seldom even slight pain at the point of injection. The nontoxic nature of the vaccination is thus proved. The use of anti-

diphtheritic vaccine is to be advocated as a means of producing the more potent and especially the more lasting protection of active immunity compared with the transient passive immunity conferred by the antitoxic serum. Even if a small percentage of cases do develop the disease in spite of this vaccination, there is always at hand the serum for curative purposes.

Primary Gastric Hyperesthesias, by T. Martini.—Causes of dyspepsia are, 1, inflammatory as in gastritis; 2, functional; 3, anatomic as in gastric dilatation; 4, chemical in disturbances of normal acidity; 5, nervous in gastric neuroses; 6, histological in glandular gastritis.

The Mendez Gonococcic Vaccine in Treatment, by B. Bosio.—This vaccine called haptmogen by Mendez and based on his conception of the lysins was used in eighteen cases of gonorrhea with disappearance of discharge and of gonococci in from seven to twenty days. It seems to produce no reaction and to be absolutely not toxic.

BRITISH MEDICAL JOURNAL.

May 15, 1915.

Epidemic Cerebrospinal Meningitis, by A. Lundie and Associates.—Typical meningitis symptoms must be recognized soon to prevent its spread. In 170 cases the primary catarrhal stage was marked in all; it was also present in every carrier. The throat is congested, the uvula edematous and flabby, and the venous radicles are distended and tortuous. The anterior faucial pillars and the posterior pharyngeal wall with the back of the soft palate are congested and injected. The color is a deeper blue than is found in the throat in scarlet fever. The voice is husky and there is a dry cough. At times the nasal secretion is tinged with blood, but there is very seldom a free nasal discharge. There is also a moderate degree of prostration except in the carriers, in whom health is normal, and in whom there is little alteration in pulse rate or temperature, unlike scarlet fever. The conjunctivæ may also be congested and injected with a slight purulent exudation at the inner canthus. At this stage a streptococcus is usually the only organism which can be cultivated from the throat; it is suggested that the primary invasion is with this organism which prepares the way for the meningococcus. The second stage is marked by the addition of septicemic symptoms, such as headache, general bodily aches and pains, photophobia, chilliness and low fever, some degrees of cervical rigidity, exaggeration of reflexes, and symptoms of mental and general nervous irritability. Spinal puncture in both these stages yields clear, sterile fluid, containing a substance which reduces potassium permanganate. In the first stage of the disease, potassium permanganate, one in 1,000 solution, as nasal and oral spray gives the best results for the local condition. Later, the usual methods of treatment should be employed, including serum.

Excessive Reaction Following the Use of Tincture of Iodine, by William J. Rutherford.—In three cases severe reactions occurred after the local application of tincture of iodine. In one a purple ecchymosis involved the entire leg from knee to ankle two days after the painting of a small pa-

tellar bursa with iodine, the skin having been unbroken. The second patient, after a local application of tinctura iodi mitior (two and one half per cent. of iodine), manifested a desquamating dermatitis with many large pemphigoid bullæ over the leg. In the third case, a freshly sutured wound of the hand, to which tincture of iodine had been applied, three days later a reaction similar to that in the second case occurred. Severe reactions after iodine have recently been reported by German army physicians; experience in the Balkan war showed that some wounds were delayed in healing by the local use of iodine. As these three cases were the only ones encountered by Rutherford in more than 14,000 cases, he does not think the condition frequent and attributes it to some peculiar individual susceptibility.

LANCET.

May 15, 1915.

Spinal Anesthesia in Suprapubic Prostatectomy, by H. M. Page.—In forty-three cases this operation was performed upon men aged from fifty to ninety-four years. Two died; but death was remotely attributable to the anesthetic. After a preliminary dose of morphine, two to 2.5 c. c. of a five per cent. solution of novocaine, containing some suprarenine borate, were injected through the second lumbar space. By turning the patient on his back, slightly elevating the buttocks and flexing the thighs on the abdomen, the height of the solution could be sufficiently raised in the spinal canal. The solutions were not weighted with sugar or mannitol in the last cases; weighting appeared to be of no advantage, for if symptoms of collapse appeared the patient's head could be lowered and the anesthetic fluid caused to recede from its previous level in the spinal canal, promptly mitigating the symptoms. In but few cases was it necessary to augment the anesthesia by the use of a volatile anesthetic, but this is strongly recommended if the patient seems anxious.

Tuberculin Administration and Graduated Labor, by Edgar Taunton.—Three hundred patients were selected as suitable for treatment in the sanatorium; some were also given therapeutic courses of tuberculin. On comparing the results obtained in those treated by graduated labor only with those who were given tuberculin in addition, it was evident that the former class showed decidedly the best results. Thus, those engaging in work only showed an average duration of treatment materially less than those with tuberculin, they gained more weight, advanced more rapidly in the amount of work which they could do, and more of them remained able to do more work after leaving the sanatorium than was the case among those receiving tuberculin in addition. The only respect in which the two classes did not differ was in the subsequent mortality, which was essentially the same for both groups.

BOSTON MEDICAL AND SURGICAL JOURNAL.

May 13, 1915.

Allen Treatment for Diabetes, by Lewis W. Hill and Joseph L. Sherrick.—The writers were so impressed by the treatment of diabetes outlined by Doctor Allen recently that they have tried it in a series of cases and find it simple, safe, and efficacious

in rendering and keeping a patient free from sugar in a much shorter time than was possible by the old method; that anybody can carry it out, and that there is no danger of coma. As soon as the patient enters the ward he is put on house diet without extra bread or potatoes for two days to determine his tolerance for ordinary diet and the severity of his diabetes. Then he is put to bed and given nothing but black coffee with one ounce of whisky every two hours from 7 a. m. to 7 p. m. If the whisky is not borne well it is omitted. If there is much acidosis sodium bicarbonate is given, otherwise not. The urine is rendered free from sugar in two and a half to three days, and the relief of such symptoms as pruritus and polydipsia is very striking. After the urine is free from sugar the patient is fed for one day on vegetables that contain not over five per cent. of carbohydrates, boiled twice, with a carbohydrate content of about fifteen grams after boiling. The next day he is given carbohydrate fifteen grams, protein twenty-five grams, fat 150 grams. Then the diet is slowly raised, increasing first the fat, then the protein, and lastly the carbohydrate. The fat is never raised above 200 grams, and the calories seldom above 2,200. The two most important things to remember are, first, not to raise the diet too quickly after starvation and to pay just as much attention to the protein intake as to the carbohydrate; second, not to worry if the patient loses weight, for this will not hurt him.

May 20, 1915.

Relation of Alcohol to Accidents, by William J. Brickley.—The conclusions drawn by the writer from a considerable experience may be summarized thus: Alcohol causes accidents, obscures the diagnosis, increases the danger of infection at the time of the accident, prevents adequate treatment, increases the danger of intercurrent complications, retards the process of repair, gives a poorer end result, and increases the mortality in accidents.

Acidosis in Children, by Arthur A. Howard.—The points made in this paper are: Acidosis is frequent in children; recurrent or cyclic vomiting, distinguished by absence of predisposing factors, is extremely rare. Such cases should be subjected to careful study for possible concealed pathological conditions. The common clinical type of acidosis is what might be termed a complicating acidosis with predisposing factors. There are numerous clinical conditions which seem capable of acting as possible etiological factors in the production of acidosis; it should be considered a serious condition, and its early recognition and treatment are of practical clinical importance. Prophylactic measures are indicated and practical, while a more thorough understanding of the biological and chemical processes that produce acidosis should prove of real value in the scientific treatment of the disease, a matter of definite clinical importance to both the general practitioner and the pediatricist.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

May 18, 1915.

Scopolamine-Morphine Treatment in Labor: Analysis of Sixty Cases, by J. L. Baer.—Dangers are connected with the administration of these drugs; uncertainty of action in a given case renders routine treatment unwise. It has been found

impossible to select cases intelligently. The lay press and magazines, in their anxiety to outdo one another, have published articles on the subject filled with the most extravagant praises, but it certainly seems strange to read of a medical enthusiast announcing that by this treatment the horrors of the delivery room are avoided. The sixty cases are classified as follows: No success in twenty-six cases; little success in seven; partial success in eight; completely successful in six. Objections noted were: Prolongation of labor, increase in the number of fetal asphyxias, excessive thirst and intense headache, more frequent post partum hemorrhage, blurred vision, delirium persisting into the puerperium, inability to recognize the onset of the second stage of labor except at the risk of more frequent examinations, the masking of early symptoms such as ante partum hemorrhage, rupture of the uterus, and even eclampsia, violence and uncertainty of the whole treatment, and the general bad impression given to women, who are being taught to approach the pains of labor in fear and trembling. It is a question whether a single dose of morphine and scopolamine is not useful in cases in which it has been customary to administer morphine and atropine.

Scopolamine and Narcophine Seminarcoisis during Labor, by W. E. Libby.—No injurious effect on the mother was observed in the thirty-five cases, but it is to be noted that as regards this method of treatment all cases were rejected in which complications of labor were feared. With this precaution, and if the patient understands that occasionally some difficulty occurs in reviving the child, the wish of an expectant mother to receive the treatment may be complied with. Physicians, however, must recognize the fact that the method has not yet reached the perfection which warrants its indiscriminate use. For example, even moderate degrees of pelvic contraction make it inadvisable to employ seminarcoisis, for in these circumstances its effects may diminish the chances for spontaneous delivery and occasionally necessitate the performance of even major obstetric operations. Similarly, the primary inertia not infrequently observed in elderly primiparæ constitutes a contraindication to the use of scopolamine. For the present, therefore, it would seem advisable to employ this drug only when there is every indication that the patient will pass through a normal confinement. An intimate knowledge of obstetrics is required if seminarcoisis is to be administered successfully, for sound judgment must be exercised, not only in the selection of cases, but also in the management of labor. The supervision of patients under the influence of scopolamine and an opiate requires competent assistants; for this reason, and also because the frequency of operative procedures is increased, hospital facilities are desirable. Still, such precautions do not mean that the method is impracticable, and ought to be discarded; on the contrary, the satisfactory results in the majority of instances furnish the stimulus to secure such further improvements as will broaden its field of application and remove its objectionable effects upon the newborn.

Mechanics and Pathology of Tuberculous Hip Disease in Their Relation to Its Diagnosis and Treatment, by P. W. Nathan.—No method is known which will prevent or limit a destructive

process that practically always leads to marked impairment of the joint structures. For the present we must be content to choose the one which will give the patient the strongest limb to stand and walk on, irrespective of joint motion or shortening; and treatment with the short plaster of Paris spica has been found better than any other, provided that it is scientifically carried out. These conclusions are based on a study of some two hundred cases.

Benzol in Leucemia, by F. H. Smith.—We still have no proof that benzol is specific, but notwithstanding the disappointment to which this fact has given rise, and the dangers which lurk in its unguarded and in its empirical use, benzol has a remarkable inhibitory influence on the course of leucemia. It may have a distinct place in therapeutics, even if its action proves short of specific, and merely symptomatic, staying, or inhibitory.

MEDICAL RECORD.

May 22, 1915.

Diagnosis and Treatment of Cancer of the Stomach; with a Suggestion as to Possible Racial Treatment of Cancer, by J. Meyers.—Positive diagnosis is often difficult, not only in incipient cases, but also in advanced ones. The important symptoms may be considered under three heads: 1. Historical; 2, gastric; 3, paragastric. The first are derived from a study of the life history of the patient, from the comparative study of a long series of detailed cases, from a knowledge of the pathology and growth of cancer. The growth of the cancer causes more or less striking signs, according to the place and type of the neoplasm. Among these are motor and secretory disturbances, pain, and vomiting or eructations of gas or sour fluid. The most important finding is hemorrhage, and without the presence of blood, at some time, in either the stomach or the stool, the diagnosis of gastric cancer is impossible. An x ray examination may clinch such a diagnosis, but cannot establish a case of cancer by itself. The paragastric manifestations are secondary to the local growth, in other organs, the liver, lymphatic system, and blood. They are usually late, and of value only in differential diagnosis. As to the blood, its serum may contain antibodies or antiferments through which confirmatory evidence may be gained, and such substances constitute the basis of Brieger's antitryptic index test and the Abderhalden test for carcinoma. Cancer should be suspected in everyone who complains of gastric disturbance not shown to be due to other causes, but the condition should never be diagnosed on a single symptom. Cancer should not be excluded because of the absence of tumor, vomiting, pain, anorexia, or of lactic acid bacilli or lactic acid; nor should it be excluded because of normal or increased hydrochloric acid or on account of early age. In all cases in which blood continues to be shown in the stomach or stool after proper treatment cancer should be suspected; as well as in those which show gastric disorders at the cancer age, whether of sudden onset or long standing, or preceded by ulcer symptoms, which are not relieved by proper treatment. In all cases of tumor, syphilitic gumma should be considered. The treatment of gastric cancer is operative. In those who cannot or will not undergo some surgical procedure,

it consists largely of medicines and diet. If there is obstruction at the cardia, a very careful, nonirritating liquid diet, of high caloric value, is indicated. Cleaning out the esophagus with the stomach pump, and leaving in the stomach two or three ounces of olive oil, may be of more service than the passing of sounds which are apt to injure the tissues and increase spasm. In patients who cannot take the ordinary stomach tube, the duodenal pump may sometimes be used with advantage. Sips of diluted hydrogen peroxide may be swallowed, in the hope that it will enlarge the passage by dissolving necrotic tissue; and atropine may be given subcutaneously to allay spasm. With the growth at the pylorus, the indication is to prevent any large accumulation of food, saliva, and gastric secretion; in all these cases remedies to assist digestion should be given and gastrointestinal antiseptics may be employed. There is a wider field of treatment than that of the individual, and that is of the race. In view of the fact that in most cases, cancer attacks at an age when child producing and child bearing are infrequent, it would seem to be advisable to urge men and women with cancer to produce children before they die, in the hope of eventually immunizing the race against the disease.

Hematuria, by C. J. Drueck.—Hematuria is always pathological, and is met with in a variety of conditions. The blood may come from any part of the urinary tract and, while sometimes the determination of its source is easy, in other instances it is difficult, if not impossible. The amount is variable, and if slight it may not show macroscopically. With the exception of the long, thin, cylindrical clots, which are formed in the urethra, blood clots in the urine have little diagnostic significance. The causes of hematuria have been divided into trauma, congestion, inflammation, organic disease, and foreign bodies. It must also be remembered that certain drugs, turpentine, phenol, cantharides, and mercury may also cause the condition, and that senna and rhubarb produce a reddish brown discoloration of the urine simulating hemorrhage. Blood appearing at the beginning of urination, while the later urine is clear (initial hematuria), must come from the urethra. If the bleeding is from the prostatic urethra it may flow into the bladder, and in this condition the last urine is often almost pure blood. In any case of hematuria the signs and symptoms other than those of the urine itself must be considered, because the trouble may be outside the urinary system. The cases divide themselves into those which must be treated therapeutically and those which can be arrested mechanically. During the bleeding there should be prescribed rest in bed, buttermilk and diluting drinks, and laxatives which will produce a soft, free stool. Drugs by the mouth are of doubtful value, but turpentine, ergot, gallic acid, or oil of erigeron may be tried. In sudden profuse hemorrhage which threatens to exsanguinate the patient, a full dose of morphine should be given; after which the bladder should be emptied and irrigated with a hot solution of silver nitrate, one in 2,000, or hydrastis, one ounce to the pint. Should this not control the bleeding, a rigidly aseptic cystotomy should be performed, all clots removed, and a drainage tube inserted. Prostatic hematuria is often relieved by

opium suppositories in the rectum and suprapubic compresses.

ANNALS OF OTOTOLOGY, RHINOLOGY, AND LARYNGOLOGY.

December, 1914.

Leprosy of the Upper Respiratory Tract, by John Horn.—Leprosy shows a predilection for the upper respiratory tract. Involvement of the mucous membrane manifests itself in the stage of catarrh and erythema, the stage of infiltration and tumor formation, and in the stage of tumor necrosis and subsequent scar formation. Beginning at the epiglottis, the disease extends to the arytenoids and vocal cords, the infiltration appearing as yellowish red, sometimes bluish nodules having often a glistening white centre. Disintegration of leprous nodules into necrotic masses often entirely destroys the bony and cartilaginous framework of the upper respiratory passages. The clinical symptoms are manifested by an irritable cough, the result of a tickling sensation in the throat. This is soon followed by a harassing cough with expectoration, to which is soon added hoarseness and eventually aphonia; dyspnea follows the narrowing of the glottis by the tumor masses. Treatment can be only symptomatic and palliative.

Tuberculous Laryngitis, by Julius Dworetzky.—Primary tuberculosis of the larynx is very rare. The disease is secondary to tuberculosis elsewhere in the body. It seems to be an affection mainly of adult life and of greater frequency in the male sex. The author is of the opinion that tuberculosis of the larynx is caused by direct invasion of the mucous membrane of the larynx by the tubercle bacillus, and that a predisposing cause is almost as essential as the direct cause. Anything that tends to congestion and chronic catarrhal inflammation of the larynx should be considered a predisposing factor.

ARCHIVES OF INTERNAL MEDICINE

April, 1915.

Age Incidence in Sarcoma, by Carl Vernon Weller.—From an analysis of 265 consecutive cases of sarcoma it was ascertained that the incidence of sarcoma is greatest at the age period of forty-eight to fifty-two years. Sarcoma can no longer be considered a disease of the young. After the period named the incidence of sarcoma gradually decreased. There was no marked difference between the male and female sexes in the age distribution of sarcoma. Although in youth sarcoma incidence was somewhat higher than cancer incidence, a marked parallelism between the age incidence curves of the two types of tumor was noted, and for more than twenty years (twenty-eight to fifty-two) the curves practically coincided. This suggests that the causal or predisposing agencies in the two cases must be identical or have much in common.

Metastatic Calcification, by H. Gideon Wells.—An instance of this rare disorder, characterized by widespread deposition of calcium salts as a result of their excessive absorption from the normal depots—the bones—is reported. The case was one of myelogenous leucemia, with destruction of bone tissue. Heavy calcium deposits were found in the endocardium on the left side of the heart and in the intima of the cardiac arteries and the pulmonary

veins. The lungs failed to collapse on removal owing to the extensive calcareous deposits. The case shows the importance of the carbon dioxide of the blood in the transportation of calcium, lime deposition having occurred precisely at those points—pulmonary veins and left heart—where the blood contains the least carbon dioxide.

Methods for Ascertaining the Functional Activity of the Pancreas, by Burrill B. Crohn.—Quantitative examination of the duodenal ferments was found to be the most accurate and reliable method of studying the external secretion of the pancreas. Diminution of this enzyme activity proved a dependable sign of organic pancreatic disease; though rarely such diminution was observed as a symptom of advanced organic disease elsewhere in the body. The cases studied numbered 120, and confirmed the value of a previously described method of ascertaining the organic condition of the pancreas by making a quantitative analysis of the enzymes present in intestinal contents obtained through a duodenal tube. A distinct increase of fat and nitrogen excretion, not due to intestinal disease or abdominal tuberculosis, and greater than the fat loss due to simple biliary obstruction, was found to be strongly indicative of pancreatic disease. Absorption of fat and nitrogen from the intestine—tested by a method which the author describes—was found to be independent of the external pancreatic secretion, and its control is ascribed to internal pancreatic secretion or hormone.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENITOURINARY SURGERY.

Regular Meeting, Held March 17, 1915.

Dr. LEO BUEGER in the Chair.

1. **Ureterotomy for Cystin Calculi; 2, Ureterotomy for Uratic Calculus; 3, Excision of Bladder, Prostate, and Vesicles by Combined Route for Carcinoma of Neck of the Bladder; 4, Nephrectomy for Hypernephroma.**—Dr. EDWIN BEER's first patient failed to report in person. He was twenty years of age, and was admitted to the hospital on October 23, 1914, complaining of pain in both costovertebral angles radiating down to the genitals. He had vomited, his urine had been bloody, and he had passed several small stones. He had never had any fever. Physical examination revealed bilateral lumbar tenderness and ureteral tenderness. The urine was bloody on admission, and shortly afterward he passed several small calculi, which on chemical analysis revealed pure cystin. Examination of the urine showed no cystin at this or any other time. The x ray showed a very clear shadow in the upper part of the left ureter, three quarters by half an inch in size, and another smaller shadow further down near the iliac crest, which it was thought might be a stone; and in the pelvis of the kidney were small concretions. Before operating for these stones, a ureterograph was taken—that being part of the routine procedure—to see whether the shadows were really in the ureter, and to demon-

strate the usual dilatation which develops above an obstructing stone. The second plate, taken with argyrol, showed the lower shadow to be extra-ureteral; a slightly dilated upper ureter and a stone in the kidney in the lowest calyx. Cystoscopy showed both meatus swollen; submucous hemorrhages in the trigone. In the right ureter there was no obstruction, and the urine was clear; in the left, there was an obstruction at twenty-six cm. and no urine.

On the 28th of October, a left lumbar incision was made. The stones were not readily felt, as they had been displaced into the pelvis of the kidney. Incision was made over the dilated ureter and the stones were removed, the large one and a small one from the kidney pelvis. It was easy to fish out the stone from the lower calyx; the pelvis and calices were then searched with a probe for further stones, with no result, but on passing the bougie a stone was encountered about three inches from the pelvis. This was milked up the dilated ureter and delivered through the ureteropelvic incision. The ureter incision was closed after the removal of four stones, two large and two small ones. The patient was discharged in three weeks.

2. The patient who had the uratic stone removed was presented. He was fifty-five years of age, and had been admitted to the hospital on October 29, 1914. He gave a history that for five months he had suffered from pain in both loins—radiating to the genitals and bladder—and had had marked frequency of urination. Three months before admission had had hematuria. He had never passed stones or gravel. His urine was perfectly clear when he was admitted. Cystoscopic examination showed some injection about the left ureter. In the right kidney there was no obstruction; in the left, a No. 5 French catheter was obstructed at twenty cm., no urine, no indigocarmine. The x ray showed a faint shadow, linear in contour, almost opposite the third lumbar transverse process. It was apparently well outside the ureteral course, and the radiographer did not consider it a stone. Of course it could not be determined positively whether or not it was a stone until the ureter was injected. A lumbar ureterotomy was performed. The kidney was exposed and was found to be polycystic, with extensive periureteritis about the stone. The ureter was incised, and although the incision was made four days after the argyrol injection a fair amount of argyrol was found in the fluid about the stone. The wound was closed in the usual way. There was slight postoperative leakage. The patient was discharged fourteen days after the operation. Chemical examination of the stone showed it to be composed of ammonium urate, with a small amount of calcium and sodium urate. Since his discharge from the hospital, the patient had been complaining of pains in the right side similar to those he formerly had on the left; but the x ray and argyrol pictures showed negative results. He had uric acid crystals in his urine. Treatment with atophan and bicarbonate of sodium, with a vegetable diet, pretty well controlled the pain.

3. This patient, a man fifty-eight years of age, was admitted to the hospital, January 25, 1915, suffering with carcinoma of the bladder. The onset of the

condition dated from September, 1914, when he began to suffer from frequent urination accompanied with pain. He also had then an attack of hematuria; but had had none since. On the 26th of January he was cystoscoped, the examination revealing a growth with bullous edema around the posterior circumference of the neck, with extensive multiple tumors over the posterior wall of the bladder. The cystoscopic diagnosis was probable carcinoma. The next day, January 27th, after getting the patient's consent, a radical operation was performed. It was at first intended to open the bladder and excise a piece for a frozen section, but that was found to be unnecessary, for on opening the bladder and palpating the mass the diagnosis was immediately confirmed. This incision was closed and then the entire bladder was liberated from its attachments, the vasa deferentia on both sides were ligated, the ureters exposed, ligated, and cut off. The right was normal in size; the left was hydroureteric and markedly distended. On dissecting out the bladder the right vesicle was found to be adherent and was stripped off with some difficulty. The prostate was also freed from above laterally and posteriorly. Then in lithotomy position the membranous urethra was cut across through a perineal transverse incision and the prostate liberated anteriorly. This allowed the removal in one piece of the lower ends of the ureters, vesicles, bladder, prostate and prostatic urethra and adjacent cellular tissues and to draw out the tumor without spilling anything, through the abdominal incision. There was considerable hemorrhage from the periprostatic plexus and the patient was considerably shocked. The two ureters were brought out through the iliac fossæ and attached to the skin, with drainage catheters *in situ*. The patient made a satisfactory recovery; he carried a rubber bag, and drained from both kidneys.

An interesting point in the case was that a week ago it became evident that there was a leak somewhere in the right ureter, but to what that was due had not been determined; possibly the tube had worn a hole at one place, though some glandular trouble on that side was suspected. Doctor Beer wished to call attention to the fact that possibly this procedure might take the place of Young's radical operation for prostatic cancer, in those patients who could stand it. Young removed the original seat of disease, but by this operation one could remove, not only the neck of the bladder and prostate but also the iliac gland bearing areas without spilling anything, and the patient was no worse off. By Young's method, the patient was left incontinent; by this method he was kept dry.

The physical examination in this case of the base of the bladder through the rectum was very suggestive of carcinoma. The textbooks failed to emphasize the importance of this method of examination for disease of the bladder. In many cases the diagnosis could be made in this way. Last spring Doctor Beer had a series of eight cases wherein he diagnosed carcinomatous growths in the bladder in this manner, and prior to this there had been considerable doubt as to whether the tumors were malignant.

4. The fourth patient, forty-seven years of age, with hypernephroma of the kidney, was operated

upon, January 19, 1912, and was discharged February 9th of the same year. He was admitted to the hospital with the history that he had been troubled with frequency of urination for six or seven years; during the past two months he had had five attacks of hematuria, each attack lasting one day. At the time of admission the right kidney was palpable. On January 20th, he was cystoscoped. At that time the hematuria was most severe, and the bladder had to be washed out for half an hour to clear it of blood. It was at first thought that the patient was suffering from vesical or prostatic hematuria, but after the washing out it was evident that it started from above. The man had had absolutely no pain. After the bladder had become clear, a clot was seen sticking in the right ureter opening. The left kidney was secreting normally. On January 24, 1912, a nephrectomy was done for hypernephroma. The tumor extended to the capsule, and the perirenal fat was adherent. This was extirpated completely, but was not involved. The patient was presented, to show a satisfactory end result in these unfavorable cases.

Pyelonephrosis with Impacted Calculi.—Dr. D. W. MACKENZIE presented F. H., born in the United States, forty-two years of age, referred on November 17, 1914. His chief complaint was pain and tenderness in the right lumbar region. His family history was unimportant. As a child, he had been sickly; had hematuria from sixteen to twenty-two years of age; could pass bloody urine at will after a little violent exercise, as a run around the block. He had, however, passed no bloody urine for twenty years. About four years previously, had been operated upon for rectal fistula. Bowels, fairly regular; patient often used cathartics; appetite, fair. Patient took alcohol moderately and cigars occasionally; denied gonorrhea and syphilis; stated that he had had continued pain in the right lumbar region for over twenty years, and dreaded any blow there. When in a crowd, he kept his hand over the right loin for protection.

Physical examination showed a patient pale, plump, moderate sized, with the chest well developed and heart and lungs normal. There was some tenderness over the region of the right kidney; a mass, probably the lower pole, easily palpated. Urine, November 18, 1914, was cloudy, amber, acid; specific gravity, 1015; heavy trace of albumin; no glucose; pus, abundant. Cystoscopy, November 18, 1914, easily done; urine, cloudy. Bladder showed some cystitis. 1. Left ureteral opening, normal; urine clear. 2. The right ureteral opening was inflamed; pus oozing from it. There was no secretion through the catheter. The catheters were removed fifteen minutes after intravenous injection of pthalein, and the bladder was catheterized; no red nor urine was obtained. The x ray showed the presence of several large calculi in the *right* kidney, which was large and hydronephrotic; the left kidney was apparently normal.

Operation, December 1, 1914, nephrectomy, disclosed an adherent kidney, about normal in size; no normal kidney tissue evident; composed of fibrous tissue with fat and pus infiltration, with two large impacted stones in pelvis. The perinephritic fat was adherent, with many small abscesses and three

small stones. The kidney was removed and tube drainage used. For the first three days after operation the temperature varied from 103° to 104° F. After this the patient did well. After discharge he gained twelve pounds in weight.

Adenocarcinoma of Testis.—Dr. DAVID W. MACKENZIE also presented W. F., born in the United States, married, with two healthy children. He was referred by his physician with a swollen right testicle. Family and past history, unimportant. Venereal history, denied. In September, 1914, the patient first noticed a swelling of the right testicle, which slowly increased in size; no pain; no urinary symptoms. Physical examination showed a well developed man, good color; weight, 180 pounds (an old football player). The right testicle and epididymis were large and hard and slightly nodular. The vas seemed normal. The prostate, per rectum, was apparently normal. No inguinal glands could be felt. The urine was normal. Two Wassermanns were negative.

Operation, March 3, 1915, after soap and water preparation: Hernial wound; cord was exposed and freed in upper part of inguinal canal, clamped, and ligated; distal portion and testicle were removed. The wound was closed with plain catgut. Healing was by primary intention. The patient was discharged March 11, 1915. The pathological report by Dr. James Ewing, of Cornell, stated that the tumor was a rounded mass, softened and cystic in the centre, about five by three by three cm., occupying a large part of the body of the testis, but well circumscribed over most of its circumference. It was opaque, slightly brownish, and presented minute hemorrhages and foci of partial necrosis. Neither cord nor inguinal nodes were involved. Section showed a carcinoma composed of a papillary adenocarcinoma becoming diffuse in many foci. The tubules of the rete showed considerable proliferation of lining cells, approaching a neoplastic grade and suggesting that the tumor arose from these tubules. The remaining portions of the testicular tissue showed atrophy, but no participation in the tumor process. There was considerable round cell infiltration in and about the capsule. The diagnosis was papillary adenocarcinoma, and the point of origin was uncertain.

Dr. EDWIN BEER said that in connection with the case of tumor of the testicle, he would like to know whether Doctor MacKenzie cut across the cord at the internal ring at once. There was a valuable method of exposing these testicle tumors—some of which were syphilitic and some malignant. The cord at the internal ring was exposed and a rubber ligature put on so that nothing could be squeezed into the circulation. Then after exposing the testicle and finding whether it was malignant or syphilitic, the surgeon went ahead and dealt with the condition as indicated. Doctor Beer was more and more of the opinion that, in these cases of primary tumor, after the exposure had been made in this way, the operation should be radical, for autopsies and statistics had shown that fifty per cent. of the cases have retroperitoneal metastases, and to obtain a cure these areas must be eradicated from the renal vein down through the iliac fossa. He further asked

whether Doctor MacKenzie was sure that the tumor reported was not a metastasis.

Doctor LOWSLEY said that an interesting point in the history of the case of stone that brought on a hematuria reminded him of another case of that sort which he had seen. Of course, in these instances the hematuria was probably brought on by mechanical trauma; but when he was a medical student he had been much interested in the question of blood pressure, and he took the blood pressures and examined the urine of some twenty-five or thirty students who were at that time running in Marathon races; and in every instance where the student ran a good race and did not drop out or stop by the way, there was blood in his urine, due to excessive and long continued pressure. The question of exercise might be of some value to the genitourinary surgeon in studying a transient hematuria; it should be borne in mind if a patient came in with a history of hematuria after a slight amount of fairly vigorous exercise.

Doctor MACKENZIE, replying to Doctor Beer's first question, about the tumor of the testis, did not know whether or not it was primary. He believed it was. The patient was thirty-seven years of age, an athlete, married, and had two healthy children, and this was the only evidence of the disease that was found. The cord was exposed, ligated, and cut before doing anything further; he had not touched the testicle at all. He had been especially interested to get the veins as far from the source of the tumor as possible.

CLINICAL CONFERENCE OF THE NEW YORK NEUROLOGICAL INSTITUTE.

Regular Meeting, Held February 11, 1915.

The President, Dr. J. RAMSAY HUNT, in the Chair.

A Case of Hypopituitarism with Epilepsy; Improvement under Specific Glandular Therapy.—

Dr. JAMES L. JOUGHIN presented a girl, aged sixteen years and eight months, who was admitted to the service of Doctor Collins in May, 1914. She was quite well until about January, 1913. At that time or a little previously, she began to suffer from severe paroxysmal headaches, bitemporal usually, but occasionally extending to the vertex and accompanied by vertigo and vomiting. In February, 1913, menstruation first occurred, at which time she was fifteen years and eight months old. The flow was scanty, but occurred at regular intervals during February, March, April, and May, and then ceased until October. From that time it was irregular. In April and May, 1913, her hair, which had previously been so abundant that she could not wear it up without producing a headache, began to fall out in quantities and about this same time her weight began rapidly to increase. At that time she weighed from 100 to 105 pounds, and on entering the hospital one year later she weighed 150 pounds and was becoming still heavier. Along with this general adiposity, she thought her hands were getting broader and plumper and the fingers more pointed. She noticed also that during the spring and summer she became very drowsy, she arose with difficulty, and volunteered

the information that she used to yawn a great deal. A profound muscular asthenia developed so that she had to give up the physical exercises which she had followed for years at the convent.

However, the most interesting feature of this period was the development of an epileptic state which rapidly evolved through the stage of *petit mal* to that of *grand mal*. In February, 1913, coincident with the first menstruation had occurred her first *petit mal* attack and these attacks became gradually worse. She did not fall with the earliest attacks, but did so later and on several occasions either bruised or cut herself. She had several nocturnal fugues, the nature of which it was difficult to determine accurately, and on one occasion during the night she cut her head with a lamp, though how this occurred she did not know. Occasionally she awoke with a sore tongue. Convulsive seizures subsequently developed, which were described by on-lookers as occurring with "biting of the tongue, twitching of the face, jerking of the limbs, and rolling of the eyes." Each month she had from two to four of these major attacks and numerous minor attacks.

As previously stated, during February, March, April, and May, she menstruated scantily. In June, however, she did not menstruate, but at a date approximating twenty-eight days after her last period, while sewing alone in a room, she felt her extremities becoming numb. This feeling spread over the whole body and she fell unconscious from her chair to the floor, where she was later found with blood flowing from the nose and mouth, and as she was later informed, with her face twitching. She did not recover consciousness for many hours, and was then amazed to find herself in bed, wearing a blood stained night-dress, with a nurse in attendance. This phenomenon was evidently a vicarious menstruation and recurred at successive menstrual epochs, until October, when menstruation per vaginam was restored. The convulsive seizures were less frequent and less severe if she menstruated regularly. All these symptoms and incidents persisted with little change until she entered the hospital in May, 1914.

Examination at this time showed nothing of interest from a strictly neurological standpoint. Her station, gait, and reflexes were all normal. There was no motor or sensory disturbance. The special senses, sphincters, and speech were unaffected. The pupils reacted promptly, the fields of vision were not restricted, and there was nothing observed in the fundus. She was very adipose, fat being generally distributed. The hair on the head was very fine, fairly abundant, but easily pulled out. There was no axillary hair, but there was a growth on the pubes. The mammary glands were undeveloped. The skin was dry and a little scaly. The hands were rather broad and plump with definitely tapering fingers. When the girl was seen in profile, there was possibly some maxillary prognathism. She entered the hospital and received while there about 250 grains of levulose as a daily dose without producing glycosuria. Any effort to increase this dose resulted in emesis.

This case was evidently one of primary hypopituitarism similar in nature to those described by

Cushing and other observers. The early bitemporal headaches, the late onset of menstruation and subsequent amenorrhea, the late development of secondary sexual characteristics, the rapidly increasing adiposity, the tapering fingers, the loss of hair, and the high sugar tolerance made the diagnosis clear. As such, the case was interesting, but the favorable result of specific glandular therapy as here exemplified was even more so. She had been receiving a daily dose of eight grains of pituitary extract of the whole gland (Armour) since leaving the hospital in May. In June she menstruated for the first time since March, and did so regularly afterward. There was no recurrence of vicarious menstruation. Her headaches gradually disappeared and her hair grew in again. She lost twenty-six pounds in weight, and had no attacks of either *petit mal* or *grand mal* during the next eight months, although previously these occurred many times each month.

This patient was shown in order to emphasize the remarkable therapeutic results which the administration of pituitary extract might exercise in this type of case and its pronounced inhibitory effect upon this variety of epilepsy was especially to be noted.

Lead Intoxication with Acute Mental Symptoms.—Dr. RUSSELL MACROBERT presented from the second division, a woman forty-six years of age, who was admitted to the hospital, February 1, 1915, in an acute delirium. Her previous health had been good, with the exception of several attacks of sciatic neuralgia, the first occurring after the birth of a child seventeen years ago, an attack of rheumatic fever eight years before, and severe hemorrhages during the menopause at the age of forty years necessitating hysterectomy. She had not been robust since this operation, but was able to attend to her children and to the lighter household duties in a creditable manner.

Early in the summer of 1913, she began to lose weight and became easily tired. She went to the country for several months with her children and returned much improved. This improvement lasted through the winter, but in the spring and early summer of 1914 she again began to lose weight. Her appetite was poor and she was unable to sleep. She returned to the country in June, and for the first few weeks became stronger, but in the latter half of July and in August, her progress was impeded by alternating attacks of diarrhea and constipation. She grew rapidly weaker and lost flesh and color. After September 25th, on her returning home, her condition was gradually aggravated. On this date an acute attack resembling ptomaine poisoning occurred and was attributed to eating clam chowder. She became rapidly worse after this, and constipation and colicky pains were frequent. Great care was taken with the diet, but brought no improvement, and the patient was sent, in November, to the Roosevelt Hospital with a view to operation for appendicitis. Here a blood examination, the blue line on gums, the colic, tremors, arthralgias, and concomitant physical symptoms, revealed the fact that she was suffering from lead intoxication. She improved and returned home after three weeks. At home she did badly. She had frequent pains in her abdomen, could not retain her food, and became greatly weakened through loss of food and sleep. A

few days before her admission, she began to have severe pains in her legs and head, she became dizzy; her sight had been failing for several days, and she could neither sew nor read. She could not fix things in her mind. The day previous to admission she developed an acute delirium.

Examination showed a woman of slight stature, weak and emaciated. Her breath had a metallic odor, her teeth were in bad condition, and a large typical blue line was apparent on her gums and upper lip. Her bowels were constipated. Her heart was very rapid, sounded labored and of poor quality. She presented the general features of an acute toxic delirium. She complained of pain in her abdomen, back, hips, and feet. She talked incoherently and incessantly and had visual hallucinations. She saw imaginary persons about her room, at the windows, and was anxious and restless. She walked out in the corridors and to another patient's room. She was very weak on her feet and tottered and staggered as she walked. There was marked weakness of all extremities, but no definite palsies; she had tremor of her face, hands, tongue, and coordination was disturbed and difficult. The deep reflexes were absent and the plantar reflexes were diminished and of the flexor type; the abdominal reflexes could not be obtained. Ocular movements were normal, and there was no nystagmus. The pupils were equal and reacted normally. Both fundi were negative. No sensory disturbance was elicited; speech was incoherent, confused, and rambling; temperature was 101° F., pulse 120, blood pressure 160. The blood showed the typical basophilic granulations of lead intoxication, and the Wassermann was negative. Her muscles were very tender. With the previous history there was no difficulty in recognizing an acute lead psychosis. The source of the lead was obscure. Three days later, after sedative and eliminative treatment, the patient improved greatly. She could stand steadily with her eyes shut, and her gait was natural. She had no incoordination. Her reflexes were all active and equal. Her temperature dropped to normal and her circulation improved. The mental condition persisted and resembled a mild Korsakoff's psychosis with fabrication, disorders of attention and memory. The thickness of speech improved slowly. For the past three or four days the mental condition had been almost normal. There was still anxiety, talkativeness, and at times depression and crying spells. An interesting feature was that the source of the causative toxin still eluded search. Various clues and theories had been exhausted. One possibility remaining cast suspicion on her teeth, which almost without exception had large metallic fillings.

Although lead intoxication was usually chronic the resulting psychosis might be either acute as in this case, or of a chronic type. The chronic cases much resembled general paresis, and it was a curious coincidence that the blood often gave a positive Wassermann reaction, though no history or sign of syphilis was present. All the somatic conditions of general paresis might be present, but there was usually a mental sluggishness and an absence of the expansiveness of true paretic dementia.

An important point regarding the treatment usually recommended, was that concerning the use of the

alkaline iodides. These favored the elimination of lead from the system, but if given too early or in too large doses a patient might thereby be re-poisoned by lead which had been dissolved out of his own tissues. These drugs should therefore be avoided in severe and acute forms and should be used only in mild cases after the bowels had been well moved. The administration of the iodides to persons impregnated with lead under unfavorable conditions might precipitate acute mental or neuritic symptoms.

It was significant that this patient had taken a preparation of the alkaline iodides just previous to her acute mental condition, at a time when her gastrointestinal tract was obstinately constipated and deranged.

Amyotrophic Lateral Sclerosis with Bulbar and Spinal Amyotrophy.—Dr. T. S. KEYSER presented a married man, forty-six years of age, who was always quite healthy until the onset of the present illness. The family history was entirely negative. No definite etiological factor was ascertained. He was a driver by occupation and therefore had been exposed to the inclemencies of the weather. The present illness began in January, 1914, with a sensation of numbness in the fourth and fifth fingers of the left hand. In a few weeks he noticed that he could not pronounce words so distinctly as usual. This dysarthria gradually became more and more marked up to the present time. Coincident with the speech difficulty, the tongue gradually seemed to become unwieldy and limited in its range of motility. During the summer he would choke at times on attempting to swallow, and occasionally saliva would drool from his mouth. There was no nasal regurgitation. The sensation of numbness gradually extended until the entire left arm was involved. Already in the spring he had noticed slight weakness and wasting of the left hand. This weakness and atrophy progressed, and slowly and gradually involved the entire arm.

In March, 1914, he began to complain of occasional cramplike sensations in the calves, and in July noticed a moderate stiffness and weakness of the lower extremities, which slowly progressed, although at all times he had been able to walk with the aid of a cane. In June, he first noticed twitching in the arms and legs, most marked in the left arm, which continued up to the present time. At no time had there been any disturbance of the organic reflexes or evidence of mental symptoms. In March, 1914, the serum Wassermann was reported as doubtful by the board of health, but strongly positive by a private laboratory. He was given potassium iodide by mouth and three injections of salvarsan, which had no effect whatever on the course of the disease.

The physical examination revealed the following: The pupils were regular, but the left was slightly larger than the right. They reacted to light and on accommodation, but the contraction was distinctly sluggish. There was no involvement of the extrinsic ocular muscles. The fundi were normal. There was no apparent weakness of the muscles of mastication, although the lateral movements of the jaw were quite limited. The jaw reflex was very active. There was no evidence of atrophy of the

facial muscles. The lower facial muscles appeared rather set or rigid, and the movements on voluntary effort showed distinctly reduced excursion. There was no tendency to uncontrollable laughing or weeping. Fibrillary twitching of the facial muscles was not present. The tongue showed marked atrophy and confined twitching. Movement of the tongue was continued to slight protrusion. The soft palate also showed a moderate but distinct reduction of motility on phonation, somewhat more marked on the left side. The gag reflex was present.

The vocal cords showed no involvement. The analysis of the patient's speech showed an almost complete inability to pronounce letters of the lingual group and moderate disturbance of the labials. There was moderate dysphagia, but no nasal regurgitation.

The intrinsic muscles of the left hand showed very marked atrophy and almost complete paralysis. All the muscles of the left arm and forearm were moderately atrophic and weak, this being more marked in the extensors than the flexors. The deltoid and spinatus muscles were slightly but distinctly involved. The right arm was not definitely affected. Fibrillary twitching was marked in both arms. The deep reflexes of the arms were hyperactive and equal. There was no spasticity of the upper extremities. The electrical tests showed the reaction of degeneration in the small muscles of the left hand. The muscles of the trunk showed no definite involvement; however, the breathing was largely diaphragmatic in type.

The epigastric, abdominal, and cremasteric reflexes were absent. No fibrillary twitching was seen in the muscles of the trunk. The lower extremities were slightly spastic, the left more so than the right. The patient walked rather stiffly and tended to scrape the inner margin of the shoes. The deep reflexes were hyperactive and equal. There was no ankle nor patellar clonus. The Babinski test showed a rather interesting phenomenon; stimulation on the median side of the soles of the feet caused slight plantar flexion of the great toe on the right and no response on the left; while on the lateral side of the soles stimulation caused moderate dorsal flexion of the great toe on both sides. Oppenheim's and Gordon's signs were not obtained. Fibrillary twitching was present in the muscles of both thighs and legs. There was practically no evidence of muscular weakness of the lower extremities. A careful examination revealed no involvement of sensation for touch, pain, temperature, localization, reaction time, or posture. The mental status, including the tests for aphasia, was quite normal. The blood, urine, cerebrospinal fluid, and Wassermann were negative.

The history of gradually progressive atrophy in the small muscles of the hand, associated with weakness and gradually involving the muscles of the arm and shoulder, the evidences of bulbar involvement and moderate spasticity in the lower extremities, and the fibrillary twitching, developing without apparent cause and unaccompanied by pain or other symptoms indicating involvement of the afferent neurons in a man in middle life, left prac-

tically no doubt as to the diagnosis of amyotrophic lateral sclerosis.

Although it was unusual for the symptoms of amyotrophic lateral sclerosis to be ushered in with bulbar phenomena, it was not so rare as to make it worthy of more than passing comment. It was well known that the central motor neurons, from their origin in the cortex to their endings in the bulb and spinal cord, might be primarily affected in this disease. Instances in which the cortical motor neurons were affected first at their origin, were, it need scarcely be said, very rare.

Letters to the Editors.

THOUGHT FOOD.

NEW YORK, May 23, 1915.

To the Editors:

1. Why does asepsis pitted against antiseptics always fall down; when in the open, on a large scale, and in plain view?
2. Why not drop in one grain of calomel to each two ounces of tincture of iodine?
3. Why not add one tenth, by bulk, of powdered pumice stone to green soap?
4. Why not look over the old literature and learn how fifteen grains of quinine were always administered as a preliminary to hyoscine morphine sleep to prevent uterine inertia?
5. Which appears most peevish? America at Freiburg, Freiburg at America, the manufacturers of narcophen at the British naval blockade, or some unmarried women at those physicians who will not conform to what the spinsters think is the proper conduct of labor?
6. The glorious advent and enthusiastic reception once accorded to ichthyol used to read much like the present literature on emetine hydrochloride.
7. Are there any diseases not due to pyorrhœa and is pus ever observed apart from the teeth and the tonsil? If so, where may one find their literature? In the medical journals of the day?

DOUGLAS H. STEWART, M.D.

DISCRETION NEEDED IN DENTAL INSTRUCTION.

NEW YORK, June 1, 1915.

To the Editors:

The present movement for instruction of school children as to the proper care of their teeth, is a most admirable thing, but in order that it may do good and not harm, the movies by which this information regarding the care of the teeth is to be spread broadcast throughout the country, must be prepared with intelligence.

At the recent meeting of the American Orthopædic Association, an educational film was shown which first exhibited the various bacteria which are found in the human mouth, and described the damage which their transportation to various other parts of the body might cause. A skull was then shown, whose teeth were cleaned with floss silk and a tooth brush in a very thorough manner by a young lady. A pecan nut, and later on a Brazil nut, were placed in the jaws of the skeleton, and by means of a dynamometer we were shown that a force of 250 pounds was necessary to crack the nut. The young lady then demonstrated, in her own mouth, the proper mode of cleaning the teeth and gums with silk and tooth brush, and then proceeded to crack a Brazil nut with her teeth, and eat it.

The logical inference to be drawn from this series of pictures was that if you kept your mouth clean and your teeth in good condition, you would be enabled to crack Brazil nuts requiring a force of 250 pounds, with impunity, and if this film is shown about the country it will result in children subjecting their teeth to a very abnormal and unwise strain.

I visited one of our large moving picture shows the other day, and in the Topical Review saw a class of school

children going through the tooth brush drill, and I am very glad to say that they did not wind up the exercise by a nut cracking contest, and I presume that the majority of the films which are to be released all over the country in the near future, will not contain this objectionable feature, but as this film was shown to an audience of medical men, and we were informed that it was to be sent about the country for the purpose of instructing children what they should do with their teeth, it seems to me wise to raise a word of caution lest more harm than good be done by injudicious methods.

The strength of the teeth, and of the bones, ligaments, and muscles, differs in various people, and because we occasionally find freaks in museums and circuses who can, apparently with impunity, bite pieces out of beer glasses and plates, and eat them up, and lift horses from the ground by their teeth, it is no reason that the average person should subject the teeth to such unwise strain, and to suggest to children that they should do such absurd things as to crack nuts with their teeth, is extremely reprehensible, and should be stopped.

REGINALD H. SAYRE, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Infection and Immunity. A Textbook of Immunology and Serology. For Students and Practitioners. By CHARLES E. SIMON, B. A., M. D., Professor of Clinical Pathology and Experimental Medicine at the College of Physicians and Surgeons; Pathologist to the Union Protestant Infirmary and the Hospital for the Women of Maryland; etc. Third Edition, Revised and Enlarged. Illustrated. Philadelphia and New York: Lea & Febiger, 1915. P. x-351. (Price, \$3.25.)

It is a pleasure to welcome a new edition of this work, which was originally written as an introduction to the new subject of infection and immunity. The book seems to have been very thoroughly revised, and the author has availed himself of the opportunity to introduce new matter on the following topics: Abderhalden's protective ferments, Wassermann's reaction, anaphylactic shock in serum therapy, Schick's allergic reactions, the serum treatment of tetanus, vaccine treatment in Hodgkin's disease. Attention is given to immunity in various diseases, to the preparation of autogenous and other vaccines, to methods of immunization, and to the technic of immunization tests. A brief but serviceable bibliography has also been added, and the book more than retains its position as a safe guide for the student and practitioner.

Report of the Director of Sanitation of Porto Rico, 1914. Bureau of Insular Affairs, War Department. Washington: Government Printing Office, 1915. Pp. 75-166.

This report embodies all the work on sanitation that was accomplished in Porto Rico for the fiscal year, ending June 30, 1914. Certainly the work has been fruitful of two results, namely, reduction of the death rate and education of the populace to a moderate degree in the significance of proper sanitation and hygiene. It is noted that money is a very important factor wherewith to obliterate bacterial and industrial diseases, but notwithstanding a sufficient supply of money in a large number of places in Porto Rico, the lethargy and laxity of the local officials did not allow of its use to its greatest capacity. This phenomenon is one of the crowning features in all tropical and semi-tropical countries.

On Prophylactic Inoculation Against Plague and Pneumonia. By W. M. HAFKINE, Bacteriologist with the Government of India. Calcutta, India: Government Printing Office, 1914. Pp. 36.

Haffkine seeks, in this brief pamphlet, to defend the position which he took and the conclusions which he reached in 1898-99 regarding the value of prophylactic inoculation against plague in India. Certain of his figures and deductions were objected to by the Indian Plague Commission

of 1898-1899, and this commission attacked Haffkine on several important points. Among the members were Sir A. E. Wright and Dr. Armand Rueffer, whose opinions apparently dominated the commission. In the present attempt to defend himself and his conclusions, Haffkine quotes freely from the published report of the plague commission and largely from the recent work of Wright and his associates on prophylactic inoculation against pneumonia. He seeks to show that the commission grossly distorted his statistics and thereby arrived at conclusions rather different from his own, although in some instances their conclusions were decidedly more favorable to his contentions than his own figures had been. The special attack was directed against his method of statistical analysis, which was then held to be productive of misleading results. On this point Haffkine is able to reply in a very forcible manner by the citation of Wright's recent work on prophylactic inoculation against pneumonia, in which it appears that Wright has made use of precisely the same statistical methods which he condemned in Haffkine's work. The communication is interesting to those who may have a special fondness for argumentative literature, and it seems to place Haffkine's critics in a rather unfavorable light, but it can hardly be said that it adds anything material to the sum of our present knowledge of the prophylaxis of either plague or pneumonia.

Contributo nuovo alla etiologia e patogenesi della pellagra. ALESSANDRINI GIULIO e SCALA ALBERTO. Roma: Tipografia Nazionale di G. Bertero E. C., 1914. Pp. 176.

The question of pellagra is always with us. The authors of this monograph, who have had exceptional opportunities of mastering the subject, take for their special theory, the origin of pellagra from silicon, which they assert produces a form of intoxication in man and beasts which they call variously "similar" and "equivalent" to pellagra. Here undoubtedly we have an interesting theory, and the ingenious expositors, with Italian subtlety, gamble in the chances cast by experiments in rabbits, dogs, and monkeys, to the loss of probability and to the benefit of their logic. It is a very useful book. There is no real danger that the writers have cornered the world's knowledge of pellagra, but their survey is learned and patient, and it is an honest attempt to display the whole problem with fairness and with a just appreciation of the difficulties of the case. The premises on which they start are stated clearly. Pellagra is not exclusively dependent upon the consumption of maize. Pellagra is a malady definitely localized, and limited to a zone where water from a soil of clay is drunk. To prove these propositions they go exhaustively into experiments, and they throw a color of success over the results of their injections of colloidal silicon. In human beings, pellagra is connected with acidosis. This is perhaps true; but none the less the question of the cause is as far off solution as ever. We commend this monograph to all who are concerned with the experimental study of pellagra.

Interclinical Notes.

A correspondent from Buffalo breaks in on the editorial calm to inquire, What is the greatest surgical operation ever performed? As we were about to ransack the library for a suitable reply, we learned that the answer was, Lansing, Michigan. Our friends are cordially invited to share in our merriment.

* * *

The following anecdote, which is concerned with both music and anatomy, comes from the Saturday magazine of the New York *Evening Post* for May 29, 1915: Mary and Tommy had been to hear a missionary talk at Sunday school. "Did he tell you about the poor heathen?" father inquired at the dinner table. "Yes, sir," answered Mary. "He said that they were often hungry, and when they beat on their tumtums, it could be heard for miles."

* * *

The Conquest of America in 1921, by Cleveland Moffett, now running in *McClure's Magazine*, treats of the same subject as the anonymous *Invasion of America*, just completed in the Sunday *Sun*. The former includes real people in its personnel, e. g., the Crown Prince and many well

known Americans, and it is curious to note that just so far as it does so, it loses in reality and becomes absolutely unconvincing. The *Sun* story mentions no one by name, yet it produces an overwhelming sense of actuality, and if fiction can arouse a people, should accomplish that end.

* * *

In *Life* for May 22d, one E. O. J. buffoons over the account in the *New York Times* of what the writer calls a new antityphoid serum—which is near enough for a funny paper, perhaps, although it lacks the accuracy that should be observed in so serious a subject. "Just in time," he says merrily, "when the former serum has been proved valueless." The allusion is to Plotz's studies of typhus and the hope of producing a preventive—the first, by the way—to help in Serbia and elsewhere. It is an edifying sight, this jester mopping and mowing about the temple of science, knowing nothing of either the disease it is grimacing about, nor of the triumphs of the campaign against typhoid.

* * *

The physician who likes occasionally to delve into the doings of his predecessors in the practice of medicine, may learn something of the dangers incurred in hunting for plants, as doctors did a hundred years ago, by reading *Alaska Days* with John Muir, by S. Hall Young, in the *Outlook* for May 26th. This stirring account of an adventure explains in part why John Muir was so much liked by all who knew him, and helps a theory of our own that popular and successful men are oftener than not men of great physical strength; or, to put it more accurately, perhaps, of great nervous strength.

* * *

We find the wealth of cartoon and other illustration in the *Review of Reviews* for June of fascinating interest; the style of our own artists is steadily improving and is as striking in its way as that of the best European men. It is hard not to be amused at some of this work in spite of the very grave situation in which we now find ourselves. As pictures of German medical and surgical procedures at the front are scarce, our readers may regard with special interest, on page 672, a photograph of Dr. von Schjerning, chief of the sanitary corps, explaining the construction of a motor ambulance.

* * *

The *Strand* for June pays a good deal of attention to physicians, by accident possibly. R. F. Foster, the card expert, credits the profession with a Doctor Ketcham who certainly plays a wonderful game of bridge; to appreciate him, however, the reader must himself be a competent player. Dr. Hugh Camino was for six months a prisoner in a German concentration camp; considering the immense number of prisoners, he did not fare badly.

* * *

Another distinctly medical feature of the *June Strand* is a sort of symposium by several English physicians on certain disputed questions of health. The questions are: 1. Do we eat too much? 2. Do we sleep too much? 3. Do we take too much exercise? 4. Can we have too much fresh air? 5. Is smoking injurious? 6. Is there any other important rule of health which ought to be more generally observed? The men who answer these questions are Sir James F. Goodhart, Dr. Frederick Needham, Dr. C. W. Saleeby, Dr. John H. Clarke, and Dr. Robertson Wallace. It will interest many of the laity to observe that all these men believe that a man must smoke very hard indeed to do himself harm.

* * *

A good many readers will note that the department, *In Lighter Vein*, is not to be found in the *June Century*; there are other media for *vers de société* and similar literature, but many will regret the passing of this joyous little corner. The new *Current Comment* replaces it, perhaps, in a way, but adds a more serious tone to the magazine generally. A wealth of good fiction enriches the *June* issue, notably a tale of Villon by young Bronson Howard. Exquisite is the only word to describe the illustrations, which include a woodcut by Timothy Cole. The anonymous *Me* will continue to intrigue those who believe themselves to be *au courant* of native writers. We commend the *Century* cordially to the physician who wishes to relax from the strain of calls and consultations.

Meetings of Local Medical Societies.

MONDAY, June 7th.—German Medical Society of the City of New York; Utica Medical Library Association; Niagara Falls Academy of Medicine; Brooklyn Hospital Club; Hornell Medical and Surgical Association.

TUESDAY, June 8th.—New York Academy of Medicine (Section in Neurology); Federation of Medical Economic Leagues of New York; Medical Society of the County of Schenectady.

WEDNESDAY, June 9th.—Medical Society of the Borough of the Bronx; Richmond County Medical Society; Dunkirk and Fredonia Medical Society (semiannual); Rochester Academy of Medicine; Medical Society of the County of Montgomery.

THURSDAY, June 10th.—New York Academy of Medicine (Section in Pediatrics); Gloversville and Johnstown Medical Association; Physicians' Club of Middletown; West Side Clinical Society, New York; Blackwell Medical Society of Rochester (annual); Jamestown Medical Society (annual); Society of Physicians of Village of Canandaigua.

FRIDAY, June 11th.—New York Academy of Medicine (Section in Otolaryngology); Society of Ex-Interns of the German Hospital in Brooklyn; Eastern Medical Society of the City of New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending May 26, 1915:

Austin, H. W., Senior Surgeon. Directed to deliver an address at Toledo, Ohio, at the meeting of the Michigan and Ohio Funeral Directors and Embalmers' Association, June 9-11, 1915. **Bahrenburg**, L. P. H., Surgeon. Granted fifteen days' leave of absence from June 1, 1915. **Bryan**, W. M., Passed Assistant Surgeon. Granted seven days' leave of absence from May 19, 1915. **Craven**, J. A., Sanitary Chemist. Directed to proceed to points on the watershed of the Ohio River, to collect data and make intensive studies. **Crohurst**, H. R., Sanitary Engineer. Relieved from duty at Farnham, N. Y., and proceed to Cincinnati, Ohio, for duty in the investigations of industrial wastes. **Derivaux**, R. C., Assistant Surgeon. Directed to proceed to Annapolis, Md., for duty in investigations of rural sanitation in Anne Arundel County. **Freeman**, A. W., Epidemiologist. Directed to proceed when necessary to Iowa City, Ia., for the purpose of consulting the State Laboratory of Hygiene. **Holt**, John M., Surgeon. Directed to represent the service at the meeting of the American Hospital Association, at San Francisco, Cal., June 22-25, 1915. **Krulish**, E., Passed Assistant Surgeon. Relieved from further duty in Juneau, Alaska, and directed to report to Surgeon B. J. Lloyd, at Seattle, Wash., for duty. **Lloyd**, B. J., Surgeon. Detailed to attend the meeting of the Pan-American Medical Congress, San Francisco, Cal., June 17-19, 1915. **McMullen**, John, Surgeon. Directed to proceed to Coeburn, Va., for the purpose of establishing and supervising a trachoma hospital at that place. **Perry**, J. C., Senior Surgeon. Directed to proceed to Richmond, Ind., to conduct an investigation of sanitary organization and administration in that city. **Robinson**, D. E., Surgeon. Granted five days' leave of absence from May 24, 1915. **Rucker**, W. C., Assistant Surgeon General. Directed to proceed to points in Wyoming and Idaho to inspect service measures now in force for the suppression of the interstate spread of Rocky Mountain Spotted Fever; also to stop in Chicago and Minneapolis in the matter of the operations for the suppression of the interstate spread of disease in the Interstate Sanitary District of the Great Lakes; also to inspect the operations of the service in Seattle and San Francisco for the eradication of bubonic plague; directed while in

California to attend the meeting of the following associations at San Francisco: American Society of Tropical Medicine, June 14-16; American Medical Association, June 21-25; American Academy of Medicine, June 25-28. **Schwartz**, Louis, Assistant Surgeon. Directed to proceed to Marcus Hook, Pa., for duty at quarantine station during the absence of Surgeon H. McG. Robertson, on temporary duty at Philadelphia. **Woodward**, R. M., Surgeon. Directed to represent the service at the meeting of the American Hospital Association, at San Francisco, Cal., June 22-25, 1915. **Wrightson**, W. D., Sanitary Engineer. Directed to proceed to Baltimore, Md., to conduct a survey of mosquito breeding places, and to suggest measures for their suppression.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending May 29, 1915:

Bailey, William Otis, First Lieutenant, Medical Reserve Corps. Resignation of commission has been accepted by the President, to take effect May 24, 1915. **Burke**, John A., Captain, Medical Corps. Ordered to proceed to Fort D. A. Russell, Wyoming, in time to arrive there not later than July 3, 1915, for duty with Troop H, Twelfth Cavalry, on the march, and at the Joint Camp of Instruction at Golden, Colo., and return to Fort A. D. Russell, and will upon completion of this duty return to his proper station. **Callender**, George R., First Lieutenant, Medical Corps. Relieved from duty at Fort Bayard, New Mexico, to take effect at such time as will enable him to comply with the order, and proceed to San Francisco, Cal., and take transport on or about August 5, 1915, for Honolulu, H. T., for duty. **Chappell**, Sidney L., First Lieutenant, Medical Corps. As soon after July 1, 1915, as his services can be spared will proceed to the Canal Zone and Join Ambulance Company No. 8. **Clarke**, Joseph T., Lieutenant Colonel, Medical Corps. Relieved from duty at Fort Logan, Colorado, and will proceed to San Francisco, Cal., to take transport about August 5, 1915, for the Philippines for duty. **Cooke**, Robert P., First Lieutenant, Medical Reserve Corps. Ordered to duty and will report to the commanding officer Remount Depot, Front Royal, Va., for duty. **Dale**, Harry L., First Lieutenant, Medical Corps. Granted leave of absence until July 10, 1915. **Harris**, Halbert P., First Lieutenant, Medical Corps. Granted two months' leave of absence. **Keefer**, Frank R., Lieutenant Colonel, Medical Corps. Relieved from duty as sanitary inspector, Southern Department, and will proceed at proper time to San Francisco, Cal., and take the transport to sail from that place on or about August 5, 1915, for Honolulu, H. T., for duty. **Kelly**, John P., First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an emergency, to take effect June 1, 1915, and upon arrival in San Francisco, Cal., will report to the superintendent of the Army Transport Service, for duty. **Schalnsner**, Adam E., Captain, Medical Corps. Granted leave of absence for four months, to take effect upon his arrival in the United States. **Smith**, Allen M., Lieutenant Colonel, Medical Corps. Relieved from duty at Fort Snelling, Minnesota, and will proceed not earlier than July 1, 1915, to San Francisco, Cal., to take transport about July 5, 1915, for the Philippine Islands, for duty. **Weed**, Mark D., Captain, Medical Corps. Ordered to proceed on or after July 1, 1915, to Fort Bayard, New Mexico, and report in person to the commanding officer, General Hospital, at that place for observation and treatment. **Wilcox**, Reynold W., First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an existing emergency for a period of five days, to take effect May 30, 1915, and at the expiration of this period will stand relieved from active duty in the Medical Reserve Corps.

The following named officers of the Medical Corps are relieved from duty at the posts specified, and will at the proper time proceed to San Francisco, sailing from that place on or about August 5, 1915, for Honolulu, H. T., for duty: First Lieutenant Royal E. Cummings, Fort Huachuca, Arizona; First Lieutenant Robert H. Cuerner, Fort Oglethorpe, Georgia; First Lieutenant Halbert P. Harris,

Fort Apache, Arizona; First Lieutenant Harry N. Kerns, Pacific Branch, United States Disciplinary Barracks, Alcatraz, Cal.; First Lieutenant John S. C. Fielden, Jr., Fort Du Pont, Delaware; First Lieutenant Stephen H. Smith, Ambulance Company No. 2, the Presidio of Monterey, Cal.

Births, Marriages, and Deaths.

Married.

Bryan—Mathews.—In Chicago, Ill., on Saturday, May 15th, Dr. Clarence H. Bryan and Mrs. Ray N. Mathews. **Chesley—James.**—In Lawrence, Mass., on Thursday, May 20th, Dr. Alfred E. Chesley and Miss Geneva M. James. **Deane—Short.**—In Los Angeles, Cal., on Tuesday, May 18th, Dr. Louis C. Deane, of San Francisco, Cal., and Miss Mabel Short. **Disbrow—Sperchor.**—In Washington, D. C., on Monday, May 24th, Dr. William S. Disbrow, of Newark, N. J., and Miss Virginia W. Sperchor. **Lunt—Donaldson.**—In Longwood, Mass., on Monday, May 17th, Dr. Lawrence K. Lunt and Mrs. Margorie Glenn Donaldson. **Pherson—Finley.**—In Newbury, Vt., on Sunday, May 9th, Dr. Frank J. Pherson and Miss Anna Marie Finley.

Died.

Adams.—In Kansas City, Mo., on Friday, May 21st, Dr. Edward Freemont Adams, aged fifty-nine years. **Bak.**—In Atlanta, Ga., on Tuesday, May 25th, Dr. Henry Bak, aged sixty-eight years. **Bicker.**—In South Camden, N. J., on Monday, May 24th, Dr. Francis J. Bicker, aged fifty-eight years. **Bischof.**—In New York, on Sunday, May 23d, Dr. Louis F. Bischof, aged fifty-two years. **Coale.**—In Baltimore, Md., on Tuesday, May 18th, Dr. R. Dorsey Coale, aged fifty-eight years. **Dougall.**—In Joliet, Ill., on Tuesday, May 18th, Dr. William Dougall, aged seventy-three years. **Duvall.**—In Washington, D. C., on Sunday, May 16th, Dr. William T. S. Duvall, aged eighty years. **Eldridge.**—In Berkeley, Cal., on Sunday, May 23d, Dr. John Rice Eldridge, aged fifty-one years. **Gavin.**—In Boston, Mass., on Thursday, May 20th, Dr. Michael F. Gavin, aged seventy-one years. **Hickman.**—In Mt. Jackson, Va., on Wednesday, May 19th, Dr. Joseph T. Hickman. **Huffman.**—In Millersburg, Ky., on Monday, May 17th, Dr. William V. Huffman, aged fifty-seven years. **Kyger.**—In McCune, Kansas, on Monday, May 17th, Dr. M. F. Kyger, aged fifty-nine years. **McCandless.**—In Pittsburgh, Pa., on Sunday, May 23d, Dr. J. Guy McCandless, aged seventy-six years. **McCuaig.**—In Erie, Pa., on Tuesday, May 18th, Dr. John E. McCuaig, aged forty-eight years. **Mabon.**—In West View, Pa., on Thursday, May 20th, Dr. John Steele Mabon, aged fifty-nine years. **Maxedon.**—In Vincennes, Ind., on Wednesday, May 19th, Dr. Thomas H. Maxedon, aged fifty-four years. **Muller.**—In New York, on Friday, May 21st, Dr. Henry W. Muller, aged forty-four years. **Nave.**—In Galveston, Texas, on Thursday, May 13th, Dr. Thomas W. Nave, aged thirty-eight years. **Oakley.**—In Portersville, Cal., on Friday, May 21st, Dr. Hewlett W. Oakley, aged thirty-five years. **Peck.**—In Utica, N. Y., on Monday, May 24th, Dr. Fayette H. Peck, aged fifty-nine years. **Rand.**—In New Iberia, La., on Friday, May 14th, Dr. Isaac T. Rand, aged forty-nine years. **Robinson.**—In Los Angeles, Cal., on Saturday, May 22d, Dr. James A. Robinson, of Taunton, Mass. **Scott.**—In Cabot, Pa., on Thursday, May 20th, Dr. John Milton Scott, aged sixty-five years. **Sloan.**—In Clemson College, S. C., on Sunday, May 16th, Dr. Paul H. E. Sloan, aged seventy-nine years. **Stanley.**—In Valdosta, Ga., on Thursday, May 20th, Dr. J. S. Stanley, of Macon, Miss. **Stevens.**—In Asheville, N. C., on Wednesday, May 19th, Dr. J. M. Stevens, aged eighty-one years. **Stevenson.**—In Akron, Ohio, on Friday, May 21st, Dr. M. D. Stevenson, aged thirty-five years. **Threadgill.**—In Oklahoma City, Okla., on Friday, May 14th, Dr. John Threadgill, aged sixty-seven years. **Turner.**—In Colfax, Iowa, on Tuesday, May 18th, Dr. Lewis C. Turner, aged sixty-one years. **Yokom.**—In St. Joseph, Mo., on Wednesday, May 19th, Dr. Guilford D. Yokom, aged seventy years. **Younger.**—In Whitesboro, Texas, on Monday, May 17th, Dr. Rufus N. Younger, aged sixty-one years.

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Lectures and Addresses.

THE TUBERCULOSIS PROBLEM AND SECTION 1142 OF THE PENAL CODE OF THE STATE OF NEW YORK.*

BY S. ADOLPHUS KNOFF, M. D.,
New York.

Section 1142 of the penal code of the State of New York makes it a misdemeanor for any person to give information on methods of preventing conception. The object of this meeting, as I understand it, is to seek an amendment to this law which shall permit a duly licensed physician to prescribe for or advise his patient with a view to prevent conception if in his opinion conception would endanger the life of the mother, aggravate any disease with which she may be afflicted, or if the physical or mental condition of either one or both parents is such that any offspring would evidently be so physically, mentally, or morally defective as to constitute a burden or danger to society.

There seems to be no difference of opinion in the minds of men and women who have studied rational eugenics and sociology concerning the necessity of beginning to work with the preceding generation in order to have strong and healthy children, and of teaching parents that quality is better than quantity, and that a large number of children, underfed or of mental, moral, and physical inferiority, means race suicide, while the reverse means race preservation.

I cannot defend my attitude better than by telling you the conclusions I have arrived at in my study of the tuberculosis situation in the United States, with which I am perhaps a little more familiar than with the other subjects which are to be discussed here tonight.

While, nowadays, we pay little attention to the theory of direct heredity in tuberculosis, we know that the tuberculous parent transmits to his or her offspring a physiological poverty which leaves the child greatly predisposed to the contraction, not only of tuberculosis, but of any other of the infectious diseases. When the mother is tuberculous, the child will most likely contract the disease during infancy because of its very close and constant contact with the mother during the first years of its life. In the families of the poor, where there are

usually numerous children, it really matters little whether it is the father or the mother who is acutely tuberculous. Since almost invariably they live in close and congested quarters, are underfed and insufficiently clad, it is of relatively rare occurrence when most of the children do not become infected with tuberculosis. In some of our tuberculosis clinics where we insist on an examination of all the children of the tuberculous parents visiting these special dispensaries, we find as many as fifty per cent. of the children to be afflicted with tuberculosis as the result of postnatal infection.

In taking the history of a patient in my private consultation work, it is my invariable custom to ask whether he comes from a large family, and if so whether he was among the first or latter born children. As a rule, especially among the poor, it proves to be one of the latter born (the fifth, sixth, seventh, eighth, ninth, etc.) who contracts tuberculosis, and I believe this to be because when he came to the world there were already many mouths to feed and food was scant, for the father's income rarely increases with the increase of the family; and the mother, worn out with repeated pregnancies, cannot bestow upon the latter born children the same care which was bestowed upon the first born. Very often the history of the patient reveals that two or three of the younger brothers or sisters had died in early childhood from tuberculosis in one form or other. We know tuberculosis to be a preventable and curable disease, but we also know that it is the disease of poverty, privation, malnutrition, and bad sanitation.

Of the 150,000 people who, it is estimated, die annually from tuberculosis in the United States, I venture to say 50,000 have been bread winners. Estimating the value of such a single life to the community at only about \$5,000, this makes a loss of \$250,000,000 each year. Another third, I venture to say, represents children at school age. They have died without having been able to give any return to their parents or to the community. Making the average duration of their young life only 7.5 years, and estimating the cost to parents and the community at only \$200 per annum, the community loses at least \$75,000,000. The value of lives of little babes, children below and above school age, adolescents not yet breadwinners, and men and women no longer able to earn their living cannot be estimated in exact figures, but it is reasonable to suppose the total annual financial loss from tuberculosis in the United States to be at least half a billion dollars. This does not include the expenditures for hospitals, sanatoriums, clinics, dispensaries, colonies, pre-

*Address delivered by invitation before a meeting of the Committee on Birth Control, held at the New York Academy of Medicine, May 26, 1915, Professor A. Jacobi presiding.

ventoriums, and other agencies devoted to the solution of the tuberculosis problem. Most of this vast sum we are spending every year for race suicide instead of race preservation.

In the face of these figures and the suffering, misery, and disappointment of parents who lose their children after having tenderly loved and cared for them for some years, I wonder if there can be any doubt in the minds of sane men that it would have been better if these children had never been born!

Not so very long ago I was asked by a young colleague to aid in the diagnosis of tuberculosis in an Italian laborer. The man earned twelve dollars a week, was thirty-six years of age on the day the examination and diagnosis was made, had been married fourteen years, and his eleventh child had been born on his last birthday; four or five had already died, two of them of tuberculous meningitis. A glance at the rest of the family showed that nearly all of them were predisposed to tuberculosis, if not already infected, and that a few years of continued underfeeding and bad housing would finish their earthly career. With two or three children to provide for, the family might have lived in relative comfort; with better food and better home environments, the father might never have become tuberculous and none of the children might have contracted the disease. The commonwealth would have been the gainer by two or three mentally and physically vigorous future citizens.

When pregnancy means danger to the life of the mother or exacerbation of an existing mental or physical ailment, as for example tuberculosis, which is always aggravated by child bearing, every conscientious physician should do his utmost to prevent childbirth in such an invalid.

Where there is tuberculosis or any other serious transmissible disease in one or both of the parents, and there is danger that it may be transmitted to the offspring, it should not only be the right but the sacred duty of the physician to prevent the conception of any physically and mentally handicapped offspring destined to become a burden to the community. It is for this reason that I hope the above mentioned clause in the penal code will be so modified that it will not be considered a criminal offense for the duly licensed physician to advise against conception when, in his judgment, this conception would be dangerous to the health of the mother or result in physically, mentally, or morally defective offspring.

I do not know the penalty to be visited upon a physician who offends the majesty of the law as set forth in section 1142 of the penal code above referred to, but I for one am willing to take the responsibility before the law and before my God for every time I have counselled, and every time I shall counsel in the future, the prevention of a tuberculous conception, with a view to preserving the life of the mother, increasing her chances of recovery, and, last but not least, preventing the procreation of a tuberculous race.

16 WEST NINETY-FIFTH STREET.

Original Communications.

DEVELOPMENTAL RECONSTRUCTION OF THE COLON.

A Further Study,

By JEROME M. LYNCH, M. D.,
New York,

AND JOHN W. DRAPER, M. D.,
New York.

(From the Surgical Clinic of Colonic and Rectal Diseases, New York Polyclinic School and Hospital, and from the Surgical Research Laboratory, New York University.)

Heredity exerts so great an influence on the morphology of the colon, that it should share equally with environment in weighing the various factors upon which colonic therapy depends. For it is evident that morphology is of prime importance in assuring both the establishment and the continuance of the complex colonic functions upon which human health in great measure depends. Heredity and environment are the shaping factors; morphology and function are the resultants.

Protoplasm is the physical basis of life. Alimentation is a primordial function of protoplasm. Relatively simple in the ameba, alimentation is highly specialized in man. This is a natural sequence in passing from the unicellular form of life to the most complex. It does not imply, however, that the protoplasm of unicellular forms is simple, for it probably contains potentialities for mutation which have been in part expended in the older and more specialized forms. Witness the mutation occurring among the streptococci, recently described by Rosenow. Like uranium, capable of yielding radium and lead, the original protoplasmic molecule contained all the potentialities; the ameba contained the man. Overspecialization produces rigidity.

That the chemistry of alimentation was highly specialized long before the origin of the molluscs is evidenced by recent studies in enzymes. Figuratively speaking and, as Shaler (1) loved to say, our early ancestors invented devices which were either cast aside or retained. One was for the transmission of stimuli between the organs and long antedated the simplest form of the nervous system. This has been definitely shown by the researches of Bayliss and Starling, who demonstrated the vital importance of heredity to medicine by showing that the duodenal scrapings of a frog are capable of activating the human pancreas. Life is a chemical problem, and many coordinations of specialized cells of the higher forms are doubtless still determined by enzyme interaction in spite of richly developed nervous systems.

Thus, the complex adult vertebrates, with man standing at their head, are controlled very largely by two factors, enzymes and nervous system, the one inherited from the most remote antiquity, the other developed in relatively recent times. These two differing factors cannot be expected always to work harmoniously, particularly when environmental and hereditary conditions are unfavorable. Recognition of some of these fundamental facts convinces one how important to the diagnosis and

therapeusis of human disease must be biology and its associated sciences. Medicine with all its branches may well be spoken of as "applied biology." In the evolution of man, Nature, figuratively speaking, was obliged to provide for the maintenance of equilibrium between the pressure of environment, on the one hand, and of heredity upon the other. This presupposed a normal ontogenetic growth from the first cleavage of the human egg to adult life. Phylogeny, or the development of the race, is more or less accurately portrayed in ontogeny, and its interpretation in relation to the etiology and therapeusis of disease in man's alimentary canal, deserves the most careful consideration.

To understand the complex, one may profitably begin with the simple. Of the vertebrates, one of the simplest is that most interesting group, the cyclostomes. These are the only vertebrate parasites. Under unfavorable conditions they became so varied both in form and in function as to be hardly recognizable today as belonging to more favorably conditioned individuals of the same class. So we human beings, too, in correlation with changing environment and the differences in hereditary tendencies, have, as it were, modified the configuration of our bodies and recast the activities of our minds.

With the overdevelopment of one system comes frequently underdevelopment of others. Witness the limitations in the activity of the English coal heaver who, capable of almost superhuman specialized muscular effort, because of synarthrosis of the spine, is nevertheless almost wholly nonresistant to the pneumococcus. What extremes of contrast are to be found on every hand if we but seek them! It is a rather singular coincidence, that Kepler and Newton, to whose labors, chiefly, the discovery of the system of the universe is due, were both prematurely born into the world; Kepler was very sickly during early life; Newton was so small at birth that he "might have been put into a quart pot" (2).

Surgeons, with their knowledge of biology, should be the first to acclaim that stasis is by no means a simple mechanical condition, but in reality a profoundly interesting evolutionary problem which deals with what may be actually a chapter in the decadence of the primates. Who can say, for example, that ovarian degeneration, so common in civilized man and so full of meaning for the future, may not be one of the many outward manifestations of stasis? However this may be, there can be no question of the degree of extreme specialization in man, not alone individually, but in his collective or social system as well.

The effects of extreme specialization upon a species is well shown in the elephants. These animals formerly roamed over a large part of the world, but are now segregated in a localized portion of the tropics, largely because they are obliged to have within easy reach a daily ration of several hundred-weight of green food. The giant lizards of the tertiary period became extinct because of their special and immense food requirements. The Irish elk is known to have suffered extinction by gradual diminution of his body as the spread of his great

antlers increased. Another instance is to be found in the history of the decadence of the hoatzins as described by Beebe (3). That most interesting, shy, and isolated type of bird, a heritage to us from past ages, is so helpless as to be certain of extinction if conditions become in any way less favorable to it. This is due to the fact that the immense crop has assumed the structure and importance of the gizzard among other birds. In reducing the area of attachment for the pectoral muscles, this change has radically affected the power of flight. "Inexplicable though it may appear, the hoatzin, although evidently unchanged in many respects through long epochs, is far from being perfectly adapted to its present environment. It has a severe struggle for existence, and the least increase of any foe or the appearance of any new handicap would result in its speedy extinction" (4). Growth variants evidently are not always favorable to future development and it may be regarded as axiomatic, that as a species attains high specialization, it tends also to extinction.

These phylogenetic considerations are one side only of the problem, but one of great interest and import as showing the breadth of research necessary to achieve final understanding of stasis. They lead directly to a consideration of ontogeny or the development of the individual.

Before continuing, it will be wise to give a definition of our conception of stasis. Stasis is a diffuse toxemia from the alimentary canal, the result of aberrant biochemistry, usually, but by no means always, bearing a measurable ratio to the delay in the onward passage of the intestinal contents as visualized by the x ray. The unexplained morbid biological processes which cause death in acute intestinal obstruction are allied to, if not identical with those which cause the symptoms of stasis.

It is impossible in a brief paper, however, to discuss adequately the bearing upon stasis of the relationship between heredity and environment, but every one must be aware, whatever his preconceived ideas, that the influence of each is profound. In general, the bearing of heredity upon stasis is prenatal; of environment postnatal. The fetus is entirely at the mercy of his ancestors; the growing child of his parents. Even though deficient at birth, if the parents are intelligently directed, many ancestral deficiencies may be compensated for. Orthopedic measures for widening the costal angle, thus creating proper visceral space, may be among these. What slight evolutionary tendency to torsal change there may be in man can be seen in the shortening of the unprotected puboxiphoid area. The barrel chest and narrow costal angle are giving way to the flat chest and broad costal angle. The occasional existence of virginal enteroptosis in the flat chested, broad angled type of so called normal habitus shows that we are far from a satisfactory classification of visceroptosis. Eugenics in relation to stasis is a pressing question of the future.

There is an interesting correlation between the development of the stomach and cecum (5). Both develop by diverticula in a somewhat analogous manner. Food is prepared for further digestion in the stomach; the end products for elimination in

the cecum and cecal colon. It enters the one by the esophagus, and leaves the other by the colon. In some animals the cecum is highly developed and the stomach simple; in others, the reverse is true. Up to the sixth week, the human fetus cannot be differentiated, except by careful study, from that of the dog or pig. What wonder, therefore, that in adult man we should meet with final arrangements of the gut, which conform, on the one hand, to the carnivorous type which is recent, geologically speaking, on the other, to the herbivorous which is ancient? The best living example of the transition in the same family from one form to another is to be seen in the kangaroos, the greater number of which are herbivores, but a few members of which became carnivora and are more highly specialized. Since writing the foregoing, an important article has appeared by Bryant (6) which shows that man, throughout his structure, is either herbivorous or carnivorous.

In man, the terminal portion of the cecum is degenerated compared with the rabbit. It is a vestigial remnant of the herbivorous type. Because of the relatively high specialization of the organs and systems of man, they will remain substantially stable, while this remnant of a primitive organ with little if any specialization will remain unstable and subject to the greatest variations. Even in those unusual cases where the cecum is absent and only the degenerate end persists, the individual may be totally disabled by the failure of the colonic mesentery to adhere, as occurred in two of our cases. The developmental trend of average human beings is toward the omnivorous type. Some are frugivorous, like the lemurs; others, less fortunate, and reaching further backward, present a herbivorous form of cecum of immense size, but lacking the usefulness and the finely adjusted mechanism of the true herbivorous type. Such a cecum is ill adapted to the needs of the man who eats cooked, mixed food, and whose long axis is parallel to the force of gravity instead of at right angles. This is an example of the predominance of one growth factor at the expense of the other necessary developmental forces.

Modern embryology discards the midgut. In the adult no dividing line can normally be seen, but it is situated about fifty cm. oral to the ileocecal valve, being occasionally marked by the entrance into the ileum of a diverticulum, described by Meckel and known to be the remains of the vitelline duct. Until the sixth week of fetal life, the canal is a single undifferentiated tube, the large bowel being slightly smaller than the small. This ratio persists until the fifth month (7). At the end of this time a diverticulum appears in the posterior limb of the U shaped tube. This marks the morphological dividing line between the large and small gut, and from this diverticulum is developed the future cecum and appendix. Shortly after, rotation takes place, this being due to pressure from the rapid overdevelopment of the small gut compared with the great. Failure of rotation compels this organ to accommodate itself on the left side, leaving the duodenum free. This is almost identical with the condition normally found in the dog. After the cecum reaches its resting place over the right kidney, it is virtually qui-

escent until birth, when it gradually migrates to the iliac fossa.

Perfect fusion of the different layers of the peritoneum is unusual. This often accounts for the extraneous bands and veils that are found at operation. Furthermore, this failure of fusion, leaving occasional spaces in omentum or mesentery, may account for cysts of these organs if the lymphatic drainage is deficient. It may also lead to very unusual distributions of the gut in specialized sacs, as in Telfer's (8) case. A man, fifty-four years old, presented a large adventitious sac on the right side of the abdominal cavity, due to irregular fusion following rotation. It contained four feet of the jejunum with its mesentery. Though tightly packed, it had caused no symptoms. Delamination may occur in any part of the peritoneum, but such laminal dehiscence is more frequent in the peritoneal coverings of the cecum and ascending colon than elsewhere. Fixation of the cecal colon through adherence of its mesentery usually takes place shortly after birth. It is a physiological adhesion. Any departure from the normal is likely to result in the formation of adventitious membranes. This we believe to be the universal origin of the many spon-sored bands and kinks (9).

Cecum and sigmoid for the reasons given, are two of the most variable organs in the body, and, when ill developed, are often responsible for grave functional disorders elsewhere. The type, as already explained, is governed by phylogeny, aberrant configurations, on the other hand, being traceable to pathological anatomical conditions, ontogenetic in origin. This view is supported by Telfer, who states that it is impossible to say definitely whether adult variations from the normal are due to a fundamental failure of rotation, or to interference caused by adhesions to adjacent organs (10). This latter, or endogenous explanation, he is inclined to accept as the more probable. In other words, variation, as already stated, is wide.

The attempted standardization of man's ethics has proved fruitless. Equally vain have been the efforts to standardize his form. Huntington, Senior, and others have shown that the textbook conception of the normal gut is utterly false. It has recently been demonstrated that the *canalis gastricus* is not limited to ruminants, whose first two stomachs correspond to our cardia, but also exists in man (11). This must account for the very rapid absorption of water, since no liquid save alcohol is absorbed from the stomach.

There are many misconceptions as to the physiology of the colon. These have afforded plausible but erroneous bases for ill advised surgical treatment of the organ. One should not consider the colon as isolated from, but as related to the small gut. The duodenum is the crucible in which the forces of life are fused. Only recently recognized as an entity, its functions are still shrouded in mystery. As attention is being focused upon the duodenum, it is seen that the importance of the vital functions of the stomach and the great gut have been so overestimated as to mask the truth. The reflex influence for evil of diseased stomachs and colons upon the exquisitely delicate mechanism of

the duodenum has not been fully appreciated. Let us not forget that much of what appears to be stomach is functionally, and therefore surgically, duodenum. From the standpoint of therapeutics, the normal digestive function of these great reservoirs is nil; the entire hydrolysis, amylolysis, and emulsification, which accompany the preparation of all food, are begun and ended in the small gut. Stomach and cecum, jejunum and ileum may be resected without threatening life, but this cannot be said of the duodenum, any interference with which is most certain to lead to serious vital, if not to fatal changes. Einhorn's constructive ingenuity has been well directed toward elucidating these problems, and to him a great debt is due.

All this enthusiasm over indiscriminate unphysiological operations for stasis is futile in view of our limited knowledge of the duodenum, and of the chemistry of the carbohydrates and fats. Physiologically, the alimentary canal is a steam boiler whose steam making capacity depends upon regular coal supply and regular ash removal. Our experimental work has shown the futility of imagining that life can be sustained on predigested primary fuel as given by enemata in the hope of absorption. And this is equally true of the oral end, if the stomach does not empty, as shown by Satterlee in his studies on the so called water trap deformity (12).

In a previous paper, we have shown that some former conceptions of the physical conditions of the contents of the colon are erroneous (13). We have also called attention to the inhibitory activity of the terminal ileum and its great surgical import. This illustrates once more the foresight of Nature, which thus, by a double method, safeguards a vital function. Ileac inhibition, normally complementary to the ileocecal sphincter and valve, may under stress become supplemental to it. Barber has shown that this same law holds in the case of the ureter and the ureterovesical valve (14). He has also shown experimentally, and we have verified it in some of our cases, the pernicious influence of partial peripheral obstruction upon the cecum and duodenum, originally described by Bloodgood. This, in a measure, accounts for cecal and duodenal dilatation, as will be shown in Barber's forthcoming experiments.

All forms of stasis must obviously be either endogenous or exogenous, in other words, hereditary or acquired in origin. It would carry the discussion far into the realms of biochemistry and heredity to attempt accurate placement of the various forms of gastric, cecal, and colonic variations, both of form and of function. In general, it may be safely assumed that such morphological variations as non-fusion, dual developments, infantile or retrogressive cecums, are truly hereditary. The overdeveloped gross human cecum is of similar origin. On the other hand, secondary changes may take place in these fundamental abnormalities, resulting in the familiar membranes, bands, adhesions, and kinks, so altering the configuration of the gut as to result in impairment of function.

In general, then, and particularly from the standpoint of surgical therapeutics, after many years of clinical and experimental study of stasis, we have not yet reached any definite conclusion or found any sin-

gle method which adequately meets all the intricate associated biological requirements as outlined herewith. Nor can we hope to do so until such time as the chemistry of alimentation is better understood. All we can say at present is that of the thirteen cecums and ascending colons removed, all have presented well defined pathological conditions. In some there was a marked polyopsis, in others the epithelium was seriously damaged. Still others showed complete destruction of Auerbach's plexus, and in the secretions of one was found a streptococcus of the viridans type. The clinical interpretation of this will be published later in detail, but it is easy to see that the theory of general systemic toxemia from such diseased organs is given added support by these findings.

It would seem to us that the very important fundamental and little known facts concerning stasis would justify cautious operative therapeutics in chosen cases, but that progress may be negated by indiscriminate surgery. Surgical therapeutics, to succeed, must be based upon inductive study of the physiological mechanism and chemistry of the parts.

Leaving unanswered these many interesting problems and the question as to why stasis occurs in some individuals who have a normal enteric morphology, so far as one exists, and why it does not occur in other individuals showing what appear to be gross variations from the normal, we pass to the consideration of those cecocolonic lesions which, in the light of our present knowledge, may rightfully be considered as suited to surgical therapeutics.

Stasis is too often confounded with the symptom, constipation. This should properly be looked upon as an accompaniment rather than a cause. Furthermore, it may ultimately be shown, as in the case of many other supposedly deleterious symptoms, that the constipation is actually in a certain sense compensatory and beneficent.

There is a large number of borderland cases, ranging from those which show normal morphological relations with aberrant, biochemical reactions, on the one hand, and those showing definite mechanical lesions on the other. These borderland cases are characterized by a recession to the hereditary type in that they are usually the result of deficient or irregular adhesion.

The treatment of this type, even after differential diagnosis may have classified them, remains today a profoundly difficult problem. Many, undoubtedly, should be operated on; some yield to hygiene. By borderland cases we understand clinically the atonic or nonadherent, inefficient organ in which no evidence of a mechanical obstruction can be demonstrated. The difficulty of classifying these is increased by the fact that, because of mobility resulting from nonadhesion, partial obstruction may at irregular times supervene.

Transient obstruction, then, either of mechanical or physiological origin, may rightly cause an individual case to be classified as borderland. Fixed obstruction, however incomplete, is obviously always surgical. Like all problems in medicine, it is a renewal of the old question of when to intervene and what is best to do.

Considering now the borderland cases which, by

reason of increasing obstruction, have become surgical, and the obviously surgical cases, the pertinent question, as to what surgical therapy should be employed, at once presents itself. Once the problem of surgical intervention is settled, it then becomes a question of the surgical therapy physiologically suited to offset the disability. This is a tremendous and as yet almost wholly unanswered problem, as its answer depends essentially upon a knowledge of colonic biochemistry and the surgical physiology based upon it.

SURGICAL TREATMENT.

The methods of surgical therapy at present available are as follows: Ileosigmoidostomy, cecosigmoidostomy, transplanted cecosigmoidostomy (Lardenois operation), appendicostomy, cecostomy, ileostomy, plication, colosigmoidostomy, autolytic excision, complete colectomy, and developmental colonic reconstruction. Lane, who first translated the academic findings of Metchnikoff into surgical terms, and who originated the first method of mechanical intervention for stasis, must be recognized as the master mind who first saw light, although future developments may show the methods now in vogue to be ineffectual because physiologically incomplete.

Ileosigmoidostomy. This operation causes a partial occlusion and exclusion of the colon. It provides no adequate drainage for the excluded segment. Drainage is necessary, first, because any excluded colonic segment will create a large mass of feces from the excretions from its own desquamated epithelium and bacteria, and second, because, in the presence of a predominant anastaltic wave, the material brought by the ileum to the sigmoid, will in part be diverted toward the cecum. In practice, this cecal dilatation becomes so clinically apparent and disabling as to require the secondary operation of colectomy in from five to ten per cent. of cases, and is no doubt, in less marked cases, the true cause of the failure of this operation to give relief.

How is this technical failure to be corrected? The simplest and perhaps safest method is by appendicostomy. This permits of colonic lavage and places the excluded loop under control. The next is to overcome anastalsis. This we have attempted by a technic based on the deductions of the experimental work of one of us, that the enteric contents flow parallel to the course of the peristaltic wave, rather than at right angles. It consists in cutting and overlapping the sigmoid. The next method is also deduced from surgical physiology, and is based on the fact that the small gut is monastaltic. Both operations have been described by the authors in a previous paper (15).

Cecosigmoidostomy. This operation, like the earlier type of gastroenterostomy, was based on the "drainage" of an intraabdominal organ by gravity. The premise, being at variance with physiology, was incorrect, and the operation, being without logical basis, has yielded results which should have been anticipated. In our hands and in the hands of others it has proved worse than useless. In two cases, we have been able to demonstrate by the x ray, a true vicious circle existing after this operation. Clin-

ically, the patients were worse off physically than before; the constipation was aggravated, and one of the patients has just submitted to operation for the closure of the stoma.

Transplanted cecosigmoidostomy (Lardenois). The gifted author of this technic bases his procedure upon the premise that the ileocecal valve is of prime necessity. He forgets that nature has provided a second, or supplemental barrier already referred to. Valvular transplantation, therefore, is at variance with our present conception of the physiological value of the valve and of the terminal ileum, as well as with our clinical experience, which allots a very minor part to the valve. Our experiments upon the ureteral valve demonstrate that its transplantation is a failure because nonphysiological. Furthermore, in preserving the cecum, this operation may defeat its own purpose.

Appendicostomy. In selected cases this operation gives excellent results. It is limited in its usefulness.

Cecostomy. This is an adaptation of Sinn's gastrostomy, and, so far as we are aware, was first suggested by Gibson. It answers the same purpose as an appendicostomy and should be thought of only when the appendix is not available. It has the disadvantage of being difficult to close and has not the superiority of control which appendicostomy affords. However, it is a useful operation in some cases.

Ileostomy. This operation is not in general use because, first, its proper indications are limited, and, second, its results are not generally correctly understood. The authors have referred to this in a previous paper (15), but will here add the following: We have been fortunate in having under observation for a number of years a physician upon whom we did an ileostomy some years ago. Upon him and with him we have conducted 164 feeding experiments, the details of which will be published later. In brief, they show that the profession has probably been somewhat hasty in accepting as fact, the arbitrary statement that ileac constipation exists if bismuth is delayed in the ileum for more than seven hours. In these experiments, the average time for complete emptying of the ileum after a mixed diet was twelve hours; of the first appearance at the stoma, four hours and fifty-seven minutes. This patient was subsequently x rayed and pronounced normal upon the seven hour stasis test. The inference is, that the bismuth and the mixed diet columns do not travel at the same rate, because the inert bismuth may not afford the same stimulation as the food stuffs. If so, a revision of this particular x ray aphorism is necessary.

Plication. The very multiplication of the methods for closing the pylorus and reducing the size of the cecum attests the inefficacy of the plication. One of us, attempting in dogs to imitate the hypothetical partial obstruction caused by the drag of the superior mesenteric upon the duodenum, plicated the gut to various degrees of narrowness. Without exception, the normal lumen was reestablished in obedience evidently to a law, that nature will maintain by every effort the continuous proportionate diameter of the alimentary canal. Very short canals have been observed by the authors to

be proportionately reduced in calibre. This law is supported by only one case in our human records. Tuttle plicated an immense cecum some years ago. The patient returned unimproved one year later. Secondary operation showed that the plications had disappeared. Plication, moreover, does not destroy diseased viscus walls. They may thus continue to infect. A form of autolytic excision described by one of the essayists may prove of value in chosen cases.

Colosigmoidostomy. This procedure has recently been favorably commented upon and may have justifiable indication in rare instances of obstruction either at the splenic angle, or in case of destruction of the descending colon, as occurred in sequence to a hemorrhagic colitis in one of the authors' series. In accordance with the law experimentally proved and clinically supported, and quoted by them in a previous paper, the enteric contents will flow in the direction of the peristaltic wave, very little, if any, escaping through a stoma laterally situated. So convinced are the essayists of the futility of such later stomata, that in their last operation of this type just referred to, the transverse colon was divided near the splenic flexure, infolded terminally, and anastomosed laterally to the sigmoid. Such a procedure makes obligatory the passage of all contents directly into the sigmoid, and affords at the same time drainage for the excretory products of the semiocluded and occluded colonic segments. Based on their experimental studies, there is ample ground for condemnation of colosigmoidostomy unless modified as above by cross section of the transverse colon.

Autolytic excision. This procedure was devised by one of us and published in joint authorship with William C. MacCarthy (17). The principles underlying the application of autolytic excision are very simple so far as the removal of any given portion of the wall of a hollow viscus is concerned, but the indication for its use is quite a different matter, owing to our present ignorance of the relative importance of certain muscle bands. The method is quite different from a simple infolding by purse-string, which merely infolds without destroying the included area. Furthermore, the effect upon the efficiency of a hollow viscus of a partial excision of its wall has not yet been definitely determined and should be studied.

Complete colectomy. Colectomy is an operation with a limited field of usefulness. It first came into vogue after Metchnikoff expounded the theory that a good many of the ills to which human flesh is heir were the result of a toxemia which resulted from the proteolytic action of the anaerobes. It has been shown that the anaerobes thrive best on the abundant alkaline juices of the cecum and cecal colon, that the portion of the colon aboral to the centre of the transverse, contains nothing but dried fecal matter and dead bacteria, and that such soil is not favorable to the development of the anaerobes. It would seem from this that if any good were to result, it could best be accomplished by the removal of the oral portion of the colon. As a result of anastalsis following ileosigmoidostomy, operators have been compelled to remove the colon in from five to ten per cent. of cases. This, we have shown

in a previous paper (18), can be obviated. Colectomy is a serious operation which, under the most favorable circumstances and in the hands of the most experienced operators, has a very high mortality. One of us had the privilege of assisting the late James P. Tuttle in 180 cases of cancer of the colon. His mortality was fifteen per cent. The mortality from total colectomy would approach very closely, if not exceed this rate. Apart from the cases of ileosigmoidostomy, in which provision is not made to counteract an anastalsis not recognized at time of operation, and therefore in cases which require total colectomy, it seems to us that the indications for the operation should be limited to individuals with megacolon.

Developmental reconstruction. By this term we mean the replacement of the ileocolic junction to its embryonic or second position. This operation, when performed in suitable cases, is by far the best as yet devised, because it is in harmony with physiological requirements. It removes the infected organ, restores the continuity of the bowel, and has a much lower mortality than total colectomy.

We have performed this operation sixteen times, and from our studies we have learned that some cases, even though seemingly suitable clinically for this operation, are destined to give poor postoperative results. We incline to the belief, at present, that cases presenting extreme attenuation of the colon wall are apt not to give as good a result as those having thick walled organs.

Doctor Bloodgood has observed after resection of the colon, that there is a marked difference between his malignant and benign cases as regards postoperative conditions. In his cancer cases, there was a rapid return to the normal; the bowels soon moved regularly and the patient felt just as well as ever he did before he had the cancer. On the other hand, patients reconstructed for cecal infections gained strength slowly, and, in a certain percentage of cases, the constipation was as marked as before the operation. Our observations dovetail with Bloodgood's, and we think may offer an explanation. We have long since noted, that in our cancer cases, quite irrespective of the presence or absence of obstruction, there was invariably a great mass of feces extending many cm. oral to the growth. Indeed, the greatest impaction occurred in a case where there was absolutely no mechanical interference with the gut calibre, and this despite the free use of cathartics and enemata. Bloodgood and his pupils have had no difficulty in demonstrating the presence of Auerbach's plexus in malignant colons. Therefore, some other explanation than destruction of this plexus must be sought for the delay. We have long thought this preoperative, nonobstructive constipation to be due to an inhibition of peristalsis by some biochemical product from the cancer acting on the plexus. This may be a protective physiological effort to stop cancer growth.

A careful histological study of all the colon segments which we have removed has been made for us by Doctor Fraser, of the New York University, and by Doctor Jeffries, of the New York Polyclinic Hospital. There is, we find, a wide divergence in the results, although all are indisputably pathological. In some of the severe cases a most careful

examination failed to reveal Auerbach's plexus or, indeed, any nerve filaments whatever. One would hardly expect to find improvement in this class of cases, and this may be the clue to the occasional indifferent results in Bloodgood's series, as well as in our own.

Of course, one cannot overlook the other explanation of constipation, which we have already mentioned in previous papers, viz., the influence of the inhibitory segment of the terminal ileum, the ganglia of which have recently been definitely observed (Huntington) and correspond to similar ganglia near the second portion of the duodenum, each being the analogue of the cardiac neuromuscular structure known as the bundle of His. Either explanation would account for failures. The great point of interest is so to correlate these histophysiological findings that one can distinguish at operation, by gross appearance, the type of colon best suited to developmental reconstruction.

To recapitulate: Stasis, because of its prevalence and of its far reaching economic and social importance, rooted in the variants which come to us from the remotest past, as well as in the very complex lives of the modern day; of undoubted significance in the disabilities of childhood; difficult of prevention because of its hereditary origin; disabler of man, woman, or child; little known, but much dreaded creator of premature old age, decrepit adolescence, and disorganizer of childhood; this is the problem to be solved by the surgery of the future.

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CHRONIC INTESTINAL STASIS.*

Symptoms, Diagnosis, and Treatment,

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In the light of recent researches in the study of the colon, more knowledge is being constantly shed on the actual conditions, so that it may not be long before a more complete classification and a corresponding symptomatology will be generally established. Early recognition of stasis is important, and detailed study in every case is essential in order that a diagnosis be made, and therapeutics, medical or surgical, be instituted. It is high time that we divorced ourselves from the idea that every case of visceroptosis belongs to a general classification, and that these morphological irregularities should be universally regarded and treated as stigmata or degenerations according to the theory of Stiller and Glénard. These teachings, although true to a cer-

tain extent, have a pernicious influence because they tend to create and perpetuate the impression that we are dealing with a hopeless condition, at least from the standpoint of surgical therapeutics. From the broad modern standpoint, medical and surgical treatment has been fused into one comprehensive whole. This paper is not concerned with acute surgical conditions of the abdomen, but deals with the chronic and borderland states, which are often properly both medical and surgical. There can here be no barrier between these fundamental branches of the healing art.

Omitting the local conditions of the lower bowel and rectum, the majority of defects in the large intestine are situated in the proximal or cephalad end of the colon, i. e., in the cecum and ascending colon and at the ileocecal junction.

As *stasis* should not be confounded with *constipation*, it is important to give our (Lynch, Draper, Satterlee, and Le Wald) conception of the condition. Stasis is a chronic diffuse toxemia of intestinal origin, the result of aberrant biochemical conditions, usually but by no means always bearing a measurable ratio to the delay in the onward passage of the intestinal contents as visualized by the x ray. Combe says it is usually but by no means always due to the toxin resulting from the action of the proteolytic anaerobic bacteria on end products of protein digestion. Historically stasis is most interesting. It is ably described in Burton's *Anatomy of Melancholy*, published in the middle of the fifteenth century. One of the classified types of the disorder being "hypocondriacall or windie melancholy," we take the following seriohumorous lines from a part of the introduction to this remarkable old book:

All my joys to this are folly
None so divine as Melancholy.
I'll change my state with any wretch,
Thou canst from gale or dunghill fetch;
My pain, past cure, another Hell,
I may not in this torment dwell,
How, desperate I hate my life
Lend me a halter or a knife.
All my griefs to this are folly,
Naught so damned as Melancholy.

What student of enteroptosis has not heard this lament over and over again! In the author's experience it is the mental symptoms often which cause the greatest distress. Among the causes of melancholy are cited "Particular parts distempered, as brain, heart, spleen, liver, *Mesentery*, *Pylorus*, *Stomach*, etc." To be noted is the chapter on Symptoms of Maids, Nunnes and Widdows Melancholy.

There are probably five important local factors in the etiology of stasis: 1. Constipation; 2, congenital malpositions and anomalies; 3, inflammatory and noninflammatory adhesions and bands; 4, infection; and, 5, functional disturbances of the epithelial cells of the gut, closely allied to the so called disturbances of internal secretion. It is impossible to say definitely which cause is uppermost, but given a combination of two of the first three factors, and it is not difficult to understand how the colon may become a fruitful soil for infection. Excluding special organisms and protozoa, the colon bacillus may be the offending bacterium in stasis and in

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some forms of mucous colitis, as has been suggested by Sir A. E. Wright, who has "cured certain obstinate and extreme instances of this infection (mucous colitis) by inoculations made with the killed colon bacilli." (Herter, p. 156.)

In order to hold to this hypothesis, it must be conceded either that the colon bacillus is normally nonpathogenic, or that if pathogenic, the protective barriers of the body are broken down. It is impossible to elaborate all the theories of the cause of toxemia in intestinal stasis, but the writer is inclined toward the colon bacillus theory, as at least an important one.

Before taking up the detailed history of the patient, it should be an invariable rule to begin with general inspection and examination. Note the mistaken diagnosis of vomiting due to pregnancy or fibroids of the uterus treated as primary intestinal conditions by gastroenterologists. Evidences of intestinal stasis should be familiar to all. They are classified by Combe as physical and mental. The physical signs are sallow or muddy skin, usually dry with tendencies to urticaria or eczema; the odor to the breath, which is so often like that noticed in the morgue or on opening the upper gastrointestinal tract in the cadaver. These alone are often characteristic and may give a clue to the condition. The tongue is frequently soft, especially on the edges where the teeth marks are ever present, and the dorsum is coated, in marked cases with a dark brown fur. The nasopharynx may show chronic congestion. These patients are subject to frequent "colds." In some instances, *Bacillus coli* has been demonstrated in the blood, but this is rare and found only in terminal stages and in children with marked stasis. It may, however, also be found in nonstatic cases.

In severe cases of stasis, pigmentation of the skin, especially around the orbits, may be seen, or accentuation of a previous pigmentation is common. The hair may become dry and brittle, and seborrhea is frequent. The nails also may become dry and brittle. Some symptoms of stasis may be strikingly like those of so called hyperthyroidism. This clinical observation may be corroborative of the experimental observations of Draper, which suggest that the fundamental etiology of stasis may be a derangement of the internal secretions beginning in the intestinal epithelium. Acquired disturbances of vision and pain in the eyeball may be present. Myalgia and neuralgia are very common, and neuritis and disturbances in the function of the nerve ganglia are not infrequent. Dermatologists can show a large number of skin eruptions, which are probably directly due to or are influenced by stasis. As evidence of this is their routine practice of dietetics, cathartics, and laxatives. In the heart and arterial system may be found cardialgia, pseudoangina, tachycardia, bradycardia, and arrhythmia. Here gas pressure is nearly always increased, owing to spasm of the arterioles, if we are to follow Combe.

Flatulence is a fairly constant symptom; Burton's "Windie type of Melancholy" is still among us. The question as to the ability to pass gas per rectum should always be ascertained, as well as the ability to take an enema and pass it painlessly in the normal way. If either of these things is at fault, there

is a strong probability of a partial obstruction, such as a kink, band, or congenital defect in the bowel. We have recently had two such cases under observation. In each, an enema caused great pain and gave no result before operation, but after the cutting of colonic membranes, it could be given without pain and with good result.

The feces may be normal, but usually show evidence of excessive fermentation and nitrogenous putrefaction. The stools may be hard, ball-like, with mucus, or diarrheal or like colitis in character. The main abnormality in the character of the feces is caused, as Combe says, by the difference in absorption and the defense offered by the intestinal mucosa. The diarrhea may be either secondary to constipation or a true static diarrhea.

Elimination of the toxins of intestinal putrefaction is associated with increased indican and the sulphoethers in the urine. In severe cases the presence of albumin and casts shows the effect of the toxins upon the renal epithelium. One of my se-

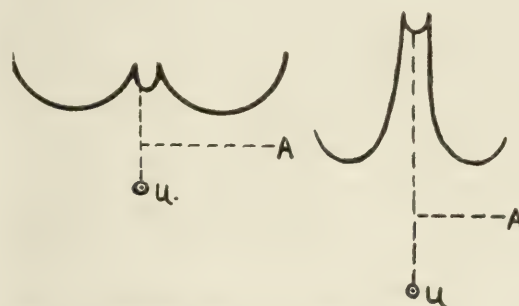


FIG. 1.—Nonenteroptotic type. FIG. 2.—Enteroptotic type.

verest cases showed extreme findings of this nature and yet ended in recovery. Faulty nitrogen partition is suggestive evidence of hepatic insufficiency, but not necessarily of an intestinal toxemia (Lynch). Marked stasis may exist and no evidence be seen in the urine unless intestinal putrefaction coexists.

I wish to call attention to the fact that such a thing as "autointoxication" exists: the term may not be good, but the condition is recognized in Europe and is successfully treated there, especially in Switzerland, where the hotels and sanitariums are crowded with our own people who often obtain relief.

The mental symptoms, which may be more marked than the physical, are sadness, fatigue, irresolution, depression, lack of ambition, multiple phobias, particularly nosophobia, inability to concentrate, loss of memory, headaches, vertigo, visual disorders, and ringing in the ears. In women, all the symptoms are accentuated, usually at the time of menstruation, and menstrual disorders may be severer on account of the toxemia.

ENTEROPTOSIS.

Intestinal stasis may occur either in the enteroptotic or in the nonenteroptotic type, but is probably more frequent in the former. Evidence of enteroptosis should then lead one immediately to suspect stasis. It has been the writer's habit to follow the classification that Rovsing so aptly calls "virginal and maternal coloptosis," as a convenient basis. The former occurs as a congenital condition, with the

long barrel shaped thorax, narrow subcostal angle, and a relatively wide flaring pelvis, so that from birth the patient has not had a fair chance for proper placement of the abdominal viscera, and because of diminished space in the upper abdomen, the organs are forced to settle as growth continues. This enteroptotic figure is seen more frequently in women, but is occasionally observed in men. The following rule for the measurement of the subcostal angle as an index of the degree of this type of enteroptosis is generally correct; if the distance on a vertical line, drawn from the ensiform to the umbilicus, is equal to or greater than the distance on a line drawn perpendicular to this line to the anterior axillary line, the subcostal angle is narrow and it is safe to consider enteroptosis present. So called maternal coloptosis, on the contrary, may be an acquired condition, due to pregnancy, tumors, and faulty habits, or may be congenital. The shape of the thorax and size of the subcostal angle are normal or exaggerated, and the pelvis is relatively of better proportion. The abdominal walls in the acquired form are lax and often bulging, with sometimes a separation of the recti muscles and most of the abdominal organs are not only displaced backward and downward, but often to the ventral aspect. One or both kidneys may be displaced. It is very important to note the renal position, because intestinal ptosis and floating kidney are usually associated. Nephropexy certainly should not be expected to, and will not cure the condition. This fortunately belongs to the surgery of the past. In severe ptosis, the liver may be displaced.

Coordinate history of intestinal troubles in patients, brothers and sisters, if corroborated, is of distinct value. If we obtain a history such as Draper has reported, of seven cases of appendicitis in one family, in view of the well known laws of heredity, there is a strong probability of a predisposing congenital anomaly in the appendicular region. In another instance Le Wald has demonstrated the family type of pseudoherbivorous cecum in two brothers. In a mother and daughter, referred to me by Draper, the stomach in each is of very similar water trap type and the colonic variations are also nearly identical. Soon we may be able to prove that these intestinal conditions follow a sequence just as regularly as other anatomical characteristics and in general accordance with the Mendelian law. A family history of "migraine" should lend a strong suspicion to a congenital defect in the gastrointestinal tract. The patient's own history of constipation is often erroneous and underestimated, as ideas of what constitutes constipation are so varied.

SPECIAL CONDITIONS.

Dilatation of the cecum. When it shows symptoms, gives pain, soreness, and a feeling of fullness in the region of the cecum. With a thin abdominal wall, palpation will often reveal a dilated tender cecum and ascending colon and a crepitation like that of "crunching snow" (Combe); also the presence of fecal masses in this part of the colon. The x ray usually indicates enlargement and ptosis of this organ, but sometimes fails, probably because the bismuth column does not fill out the gut. The tenderness and crepitation and gurgling are usually felt

on the extreme right and extend along the ascending colon. In cases of severe inflammation of the walls of this viscus, rigidity of the abdominal muscles may be present, and lead to an erroneous diagnosis of appendicitis, but never can be mistaken for a spastic colon. The bismuth often remains in the cecum for days after the remainder of the large intestine has been emptied. A very frequent remark from these patients is, "I would be all right if I did not have the soreness on my right side," and they seek relief by supporting this region by the hand. Symptoms of stasis are marked, diarrhea being sometimes substituted for the usual constipation. The condition improves for a time after catharsis, but is never cured by drugs. It is very frequently diagnosed as appendicitis, and the appendix normal or otherwise comes out, but the diseased cecum remains. The number of these cases is unfortunately large.

There is a type of case, however, with megacecum, with very little constipation or inflammation, in which the removal of a chronically inflamed appendix with or without autogenous colon bacillus vaccines will cure the condition. A differential diagnosis is of vital import. The effect of cecal constipation on the functions of the stomach is often marked. A large percentage of such cases show retention in the stomach, which retention has been relieved by the proper treatment of the cecal condition. This may be explained as reflex, through the sympathetic system, and is often seen to accompany chronic appendicitis.

Intestinal kinks and volvulus may be suspected, but can scarcely be proved even with the aid of radiographs, except in marked and acute cases. The ordinary acute or chronic intestinal obstructions are familiar to all, but an intermittent partial obstruction is easily overlooked. An abnormally long colonic mesentery (nonadhesion) may be suspected when radiographs demonstrate a long dilated and atonic organ, dilated duodenum, and periodical attacks of right sided pain, relieved by the passage of gas, and when periodical attacks of migraine appear clinically.

Ileac constipation. Obstruction to the "ileac effluent" gives a toxemia with excessive flatus, with or without colonic stasis. Gradual emaciation and constant digestive disturbances are usually present. Radiographic findings require most careful interpretation and their reading must be based upon a most exact standardization. Often the duodenum is dilated, as Bloodgood has demonstrated, and retention in the stomach coexists. In other instances, there is a marked interference with the progress of the bismuth column, and there can be no doubt about the obstruction. Occasionally there is slowness in the progress of the bismuth mixture and an apparent obstruction without actual lesion, and this may be explained by slowness in ileac digestion or by exaggeration of a normal ileac retardation. One symptom that may result from ileac constipation is a progressive toxic arthritis, showing the lesions of arthritis deformans. One particular instance occurred in a patient under personal observation, with no other apparent focus of infection than a marked ileac constipation, the whole of the bismuth column being dammed back at the ileocecal orifice for over

fourteen hours. With no marked constipation, the toxemia and universal joint condition developed while under observation, and has been progressive, the patient declining abdominal section. There has been no improvement under the ordinary medical therapeutic measures.

Microcolons and macrocolons are diagnosed usually by means of the x ray and often give the same symptoms as intestinal stasis.

Diverticula should always be considered and can often be demonstrated in the radiographs. The symptoms are usually those of interference with the function of the colon, and the diverticula may be palpated as masses and are not infrequently mistaken for malignant growths. They may form abscesses or fill up intermittently with fecal matter and mucus, or perhaps degenerate into cancer.

The *nonrotated colon* may give no symptoms in itself and is diagnosed best by the x ray. The duodenum does not curve around dorsal to the stomach, but the whole of the small intestine is to the right of the median line and the colon to the left. On account of the long, loose mesentery, volvulus may occur. This was demonstrated in one of the writer's cases, in which a loop of the colon appeared in the right hypochondrium in one of the radiographs, whereas in all the others the whole of the large intestine had been entirely on the left side. This was in all probability the explanation of the attacks of pain in this region, caused by the gas pressure in the loop, flopping over to one side.

Sigmoid disease and adhesions may give reflex symptoms in the stomach and colon, also fissures and any like interference with the action of the sphincter ani; rectal and sigmoid examination should not be omitted.

It is important to radiograph every case in which there is a history of long standing intestinal trouble, however simple it may seem. One instance alone would justify this, for example, a patient with recurring attacks of diarrhea is often treated by astringent diarrheal mixtures when the x ray will give a clue as to the particular part of the intestines to be studied and lessen the ordinary "deadly routine."

MEDICAL TREATMENT OF SIMPLE STASIS WITHOUT PTOSIS.

Cure of "Hypocondriacal or windie melancholy."

1. Phlebotomy; diet, preparatives, averters, cordials, purges, pennyroyal.

2. Provoke urine with aniseed, daucus, asarum, and stools, if need be, by clysters and suppositories.

To use treacle now and then in winter. (Burton's *Anatomy of Melancholy*, p. 218.)

First, it is essential thoroughly to empty the intestinal tract. This is usually accomplished by castor oil in one to two ounce doses, repeated for three nights. The colon is then irrigated with ox gall, or hydrogen peroxide and normal saline solutions. Two quarts of the stronger solutions are given with the patient in the dorsal position, two quarts of the saline with the patient on the side, and then in the knee-chest position. From six to eight quarts in all are given by a competent nurse. Five or six inches is far enough to insert the rectal tube, as experience has shown that the tube may bend on itself if inserted further. All laxative medicines

are forbidden and a laxative diet is prescribed. The ordinary hygienic rules for constipation are strictly adhered to. Further treatment depends upon the character of the constipation. In most instances, we are dealing with atony of the colon. In these patients, proper massage and vibration to the colon will have good results, if given daily for two weeks and every other day for two weeks more. This should be done by the physician himself or an attendant skillfully trained. The ordinary massage is useless. In some instances the intestine, even if sluggish for a long period of years, will be emptied promptly and act for itself within two weeks. In the spastic type, manipulation of the large intestine may be harmful. Belladonna is administered, three times a day and, if necessary, small doses of codeine are given. Rest is enjoined and heat applied to the abdomen, previous to the daily time for stool. It is important to urge both these classes of patients not to worry about their bowels and not to take any kind of cathartics or enemata. In a spastic type, an enema of one pint of hot water, or weak solution of ichthyol at intervals, is allowed. In the atonic type, lack of tone in the muscles of the sigmoid and rectum can be corrected by the measures for improving the tone of the colon. Strychnine or arsenic, as a tonic, is useful in some cases. Electricity has its advocates. If the feces are dry, plain agar agar is given with meals as a routine. Plain water or oatmeal water, in addition to other fluids at meals, is given. Mineral oil is regarded as an adjuvant and is given at first in severe cases or to those over whom control is difficult. It is usually well borne in the simple cases without ptosis. It is not a cure and should be eventually stopped, as no case is regarded as cured that has to depend upon the oil. Relapses are not uncommon and should respond well to a short time treatment. Other causes for constipation should of course be eliminated. Spasms of sigmoid and rectum may be cured by local applications through the sigmoidoscope. Some cases of hemorrhoids and of fissures, when cured locally, are also cured of chronic constipation.

TREATMENT OF INTESTINAL STASIS WITH PTOSIS.

The same preliminary cleansing of the colon by catharsis and irrigations is employed. The irrigations may be more difficult and need all the more skilled attendant. In addition to the same diet, hygiene, and colon manipulations, abdominal support is imperative. In women, especially with vaginal coloptosis, the abdominal supporting corset, made so as to fit snugly and also so as to hold the figure erect, is essential. One attendant should be educated in this line and follow up the patient afterward. Abdominal supporting belts or the Curtis abdominal plate may be permitted for the maternal coloptosis type or for men. The corset is safer, however, for women. The patients are instructed to elevate the foot of the bed gradually, up to twelve or eighteen inches, in other words, up to the limit of tolerance. This act takes advantage of one third of the patient's time for gravitation to act upon the intestinal tract (Goldthwaite). Radiographs have demonstrated a permanent elevation of the stomach and colon of two inches by these methods, which amount may measure the difference between sick-

ness and health. This elevation will also often materially help the constipation, as has been also demonstrated by the improvement in the bowels after operative suspension of the colon. The rule is intestinal support at all times when on the feet. Exercise to the abdominal muscles, both mechanical and electrical, is good if the patient and the doctor can afford the time, but this can be managed in an institution. The Weir Mitchel rest and feeding treatment and antitoxemia diet seem to be a necessity in some cases, but as a rule it is better to keep these patients on their feet.

An important aid in these toxic conditions, is the administration of autogenous colon vaccines, which are given by the writer as a routine treatment. The results are sometimes remarkable both on the general toxic condition and locally on the infected bowel. Reports on these vaccines will be presented at a later date.

While intestinal stasis and toxemia is essentially a medical disease and most of the symptoms respond to medical treatment, there are a number of cases that will not end well without surgical intervention. It is extremely difficult to lay down hard and fixed rules for operative procedures. The surgical sense of the medical man is often put to the test. Patients with long standing intestinal stasis, that has resisted medical treatment for long time, are willing to do anything to get well. It is just here that we must pick the operable ones very carefully. The amount of toxicity is no contraindication, but rather the condition of the patient's tissues. Then the skill and experience of the operator must be considered, and the type of operation. A very much diseased colon should be removed, as it is the source of the trouble. Partial colectomy seems to be the operation of choice, as complete colectomy is a very severe operation; the outcome is doubtful and more tissue than necessary is removed. In nearly all my picked cases, the operation and results have been successful. The aftertreatment is as necessary as the operation itself, as several of the patients began to run down hill until medical means rallied them and complete relief followed. Apparently, the younger the patient, the better the chance of recovery. One patient of thirty-eight years nearly died from deferred shock, two days after the operation, but responded to heroic treatment and is well so far as her intestinal trouble is concerned. A kink and volvulus formation necessitated the operation. Another patient had been insane for two years and nearly died from toxemia after the operation. Colon vaccine apparently saved her life and cleared up all the toxic symptoms; she is alive and well today, five months after the operation. The vaccine occasionally stimulates intestinal peristalsis.

In closing, and in order to emphasize the importance of recognizing and treating these cases of intestinal toxemia, I cannot do better than quote Sir Berkeley Moynihan in his address to the Clinical Congress of the Surgeons of North America, in 1914. "In medicine, the new ideas are slow to give currency; we are a conservative race and we all find criticism a more facile process than creation. . . . We do well perhaps to go warily, but we must surely go with open minds, for there is no intellectual sin

more deadly than sloth of the imagination. I have thought many hours, read much, and worked not a little on this subject of intestinal stasis and have tried to clear my eyes for the new vision open to us. My experience has been full of surprises, old beliefs so slow to perish have been undermined and new faiths so slowly fashioned have been painfully accepted. And now I do not hesitate to say that the whole question is one which will have to be considered by all of us and to be put to the proof. It cannot be dismissed with a shrug or a sneer, for there is truth in the matter. Among much that is dross, there lies a nugget of pure gold."

125 WEST FIFTY-EIGHTH STREET.

THE TREATMENT OF ERYSIPELAS AND OTHER FORMS OF DERMAL AND EPI- DERMAL INFLAMMATION WITH CARBOLIC ACID AND ALCOHOL.

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The use of carbolic acid in the treatment of various inflammatory conditions of the skin and subcutaneous tissues has been reported by me from time to time during the past ten years. This treatment has yielded more considerable success in my hands than any other, with the possible exception of autogenous vaccines, and as these are not always available to the general practitioner, or effective when obtained, it seems worth while once more to emphasize this treatment.

Some eleven years ago we began in our clinic to treat all cases of erysipelas, beginning cellulitis, and furunculosis by the method that I have described in previous communications, and since the first case so treated, especially in erysipelas, we have so seldom failed of a satisfactory result that we have discarded all other remedies. Up to the present time over 1,000 cases have been collected, treated either by myself or others. These cases have included, not only the beginning stages of facial and other forms of erysipelas, but those in the advanced stages, where the area involved has varied from the face only to the face and scalp, and also where other large areas of the body were affected with marked general systemic symptoms. In cellulitis in the early stages our results have been almost equally good. With the more deeply seated cases they have not been so satisfactory. With furunculosis they are uniformly satisfactory—in the brawny infiltration resembling carbuncle, but without anthrax bacilli, even more satisfactory than in furunculosis.

Almost the first result noticed by the patient is a complete cessation of the unendurable itching, burning, and throbbing. Usually within a few hours the nausea in erysipelas, if such is present, subsides, and within twenty-four hours the temperature sinks to normal, the pulse very rapidly falls in the severe cases from 120 or more to normal, or even subnormal, the appetite returns, and, except for the diminished swelling, which remains for twenty-four or forty-eight hours longer, the patient is relieved from his distressing symptoms.

Technic of the method in erysipelas. This consists of painting carefully with a swab of cotton upon an applicator the entire surface of the involved area, and extending about a half inch into the surrounding apparently healthy skin, with ninety-five per cent. carbolic acid. This is left until the purplish color of the inflamed area is replaced by a pretty complete whitening of the skin. It is essential to the success of the procedure that we await this whitening before we proceed to the next step. On the other hand, if we allow the whitening to proceed to a thorough blanching, we produce a distention of the epithelium, a slough of the skin, which, while it will not produce a scar, will prove painful to our patient, delay our result, and add nothing to the efficacy. Where we have large areas involved, it is advisable that only a portion be painted at one time. The second step consists in going over the whitened area very thoroughly with a second swab saturated with alcohol. If this swabbing is done thoroughly, the whitened area becomes once more pink, and the alcohol must be laid on until this is accomplished. After this we proceed with other areas with the carbolic, neutralizing with alcohol, until our operation is complete at one sitting. It is essential to include half an inch of the apparently sound skin, as the bacteria of erysipelas are found beyond the apparently involved area. In some of our first cases, we neglected this precaution, and found in twenty-four hours that, while we had completely controlled the initially inflamed area, a ring of newly inflamed tissue extended out in all directions beyond, much as an advancing ringworm extends. Our method includes the painting of the hairy scalp, the eyelids, the mucous membrane of the *alæ* of the nose, and the nipple of the breast, if necessary. We have failed to note any evil result. There has been no toxic action of the carbolic in any case so far observed, although the urine is sometimes darkened and of characteristic odor. The temperature falls rapidly, and, in severe cases, it is frequently necessary to support the patient with strychnine and whisky.

In looking over our statistics and following the reports of others, it has been interesting to observe that, in the majority of cases of failure, our patients have been young children. These have also been the cases in which we have had the greatest number of symptoms of absorption of carbolic acid, and we suppose it may be due to the more delicate texture and more rapid absorbing power of the skin in these young patients.

An observation made in one of our earlier cases may prove interesting. This was a recurrent, post-operative case of tuberculous osteomyelitis of the tibia in which erysipelas developed. When I saw this case in consultation, the patient, a girl of thirteen years, was suffering from an inflammation involving the entire leg and part of the thigh. The parts were tremendously swollen, the patient had a temperature of 106° F., was delirious, had had nausea and vomiting and an imperceptible pulse. I suggested that, as the patient was apparently nearly moribund, it would do no harm to try this treatment, and that we might obtain some benefit. Much to my surprise, the following morning I was called on the telephone by the physician in charge, who

informed me that the patient had a subnormal temperature, that the pulse was nearly normal, the child was asking for food, also that he had been stimulating since early in the morning with large doses of whisky and strychnine. The child made an uninterrupted recovery, and, curiously enough, the area of tuberculous osteomyelitis, which involved nearly two thirds of the tibia, promptly healed, and the patient has remained well to this day.

Another case showing the fearlessness with which this method may be used, occurred in a young woman of social position, very beautiful, of the thin skinned, blonde type. When I first saw the patient, after forty-eight hours, both eyes were closed, the lips were swollen until the nose was blocked, the ears were about twice the normal size, and the erysipelatoid area had included the scalp, the eyelids, the neck, and the breast. To the horror of the family physician, I painted the entire area at one sitting, painting and carefully neutralizing with alcohol in small sections. The time consumed in doing this effectually was nearly two hours. The patient had a temperature of nearly 103° F., extreme prostration, nausea, and slight delirium. The following day the temperature and pulse were normal, appetite had returned, the pain had entirely disappeared, and, except for the disfigurement, the patient felt quite happy. Within two weeks the superficial layers of the skin had peeled, leaving behind no scars, but a smooth, slightly pinker epithelium than normal. Within one month the complexion was perfect, and the patient expressed herself as being so pleased with the result that she would willingly have undergone the erysipelas and treatment for the sake of the resulting complexion.

Another rather spectacular result is worth reporting. The patient, a physician, first noticed a small, inflammatory, erysipelatoid area on his foot, about nine o'clock in the morning, while attending a convention in Washington. By noon the process had spread to such an extent that the entire foot and leg nearly to the knee were involved, and the patient took the train back to New York. By eight o'clock in the evening, when I was called into the case, the thigh nearly to the hip was also involved, the patient had a temperature of 106° F., very rapid pulse, nausea, extreme prostration, and headache. During the application of the carbolic and alcohol the process spread so rapidly that I was obliged to establish a back fire by painting an area about the groin and over the back above the buttocks, about three inches in width. The following morning, the patient's temperature was less than 100° F., his pulse in the nineties, and his prostration was practically over. His temperature never rose above one degree, and that was caused by an exacerbation from my failure properly to block the spread of the condition at one point on his back. This promptly yielded to a second application of carbolic and alcohol. Within ten days this man was up and attending to his professional duties.

If the treatment is properly carried out, no scarring results. The superficial layers of the skin come off as in a mild sunburn. The skin beneath is only slightly tender. One application is usually sufficient to control the inflammation. The aftertreatment consists in the use of moist dressings of almost any

sort. Saline or one in 20,000 bichloride solution has been my choice. I wish to warn against the use of weak solutions of carbolic acid used in wet dressing, both in these and in other cases. The maceration of the skin resulting from the moist dressing allows the absorption of carbolic acid, and sloughing of tissue follows. The use of the ninety-five per cent. carbolic in its action upon the skin inhibits of itself the absorption into deeper areas.

The application of this treatment in similar inflammations follows out the same line as in erysipelas. In furunculosis the technic is simple. It consists in crucial incisions, in gentle swabbing out of the pus, and the application to the cavity of carbolic neutralized with alcohol after from ten to twenty seconds. One application is usually quite sufficient for our purpose. My only plea for its use in furunculosis is that the destruction of tissue is considerably less with a consequently much lessened scar.

In the brawny infiltrations, sometimes designated as carbuncle, but without anthrax bacilli, its application by the same method as in furunculosis with the addition of drop injections hypodermically of carbolic neutralized almost immediately by a second drop of alcohol in a second hypodermic injection, is extremely efficient both in the relief of pain and in the limitation of extensive slough which is so distressing in many of these cases. A note of warning must be sounded in this last method of application. Very small doses of carbolic must be used to prevent too great absorption.

As I have already stated, where a good autogenous vaccine can be produced in any of these cases, its use is the most efficient means at our command for combating the disease process. This treatment, however, can be used in conjunction with the autogenous vaccine. My proportion of failures in erysipelas—less than twenty per cent. and these mostly in children—compares very favorably with any other method in use.

137 WEST SIXTY-NINTH STREET.

PAIN.*

Its Clinical Significance and Diagnostic Value,

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No other phenomenon connected with the life history of the human body has been so great a factor in the historical development of medicine as pain. Indeed, it can readily be conceived that the first medical thought and effort was prompted by and directed to its relief. It is justly held that the relief of pain is one of the chief duties of the medical profession. The causation is often a problem upon the correct solution of which depends the ability to relieve suffering.

What is pain? Pain is Nature's special means of indicating that natural laws are being transgressed, and normal functions prejudicially disturbed. To the truly scientific physician it speaks in unmistakable language. Pain is of diagnostic significance and

should be carefully studied by every clinician. Such study will repay all of the time and trouble devoted to its interpretation.

Pain is at one time or another experienced by all. It is the commonest symptom of the least departure from normal health, and is rarely, if ever, absent in disease. Probably over eighty per cent. of all diseases begin with pain or give rise to it at some time in their course. The sufferer seeks relief, often regardless of the cause, anxious only that he should be freed from pain. The remarkable frequency with which it occurs as the prominent symptom of disease, especially of internal ailments, is well recognized.

The usual query of the physician, "What is your chief complaint?" almost invariably evokes the laconic answer, "pain." Whether it is pain in the head, in the chest, in the abdomen, or in the extremities, patients seek medical aid because they suffer pain, because pain frequently incapacitates them from performing their daily duty, and inflicts untold miseries in many instances.

Regarded from the broadest standpoint, pain is a necessary, desirable, and advantageous factor in the evolution of mankind, as well as in the development and survival of the individual; it is an essential factor in the preservation of every tissue in the body. The common fate of structures that are insensitive, and lesions resulting in tissues that are without the power of recognition of harmful irritants, are facts that need no amplification. When the eyeball is deprived of its ability to perceive the presence of foreign bodies and no means are taken for their removal, then ulceration and destruction of the globe are the common consequences. If the nerves of an arm or leg are destroyed, either through trauma or in the progress of some disease such as leprosy, the fingers and toes are often burned, cut, or otherwise injured, because such lesions cause no pain; ulcers, abscesses, and even gangrene may result. What is true of the external parts is equally true of the deeper structures.

The pain in acute appendicitis that has gone on to suppuration, entails considerable suffering and is a danger signal to the physician. But should gangrene develop, the pain ceases, and the patient considers himself to be improving. But it is only a calm before a storm, for should this phase of the pathology not be recognized by the alert surgeon, rupture of the appendix results, causing a diffuse peritonitis which often destroys life.

The beneficence of pain is well illustrated in a fracture of a bone, or a sprain or dislocation of a joint, for it enforces the rest that is so essential in the process of repair. The pain of a peritonitis or of a pleurisy similarly enforces rest, thereby restricts the spread of the inflammation, and promotes repair. Beyond this power and its timely warning of disease, pain may in itself become one of the most formidable enemies by its preventing sleep, destroying appetite, deteriorating the mind, and racking the entire system.

Pain presents itself in many varieties and under a variable diversity of circumstances, but in intensity it is generally controlled by the cause producing it; the circumstances in which it occurs and the idiosyncrasy of the individual are factors which

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greatly modify its effect. To the individual it is of varying quality; by one person it is borne with fortitude and resignation, to another it is a distracting influence, which completely upsets the equilibrium of health. The perception of pain differs with the temperament of the individual; the lower classes with dull intellect are more obtuse to its influence, while those whose nervous system is highly developed, respond to the slightest stimulus.

The physiology of pain is not entirely clear. The skin is regarded as a sensory organ having to do with the sensations of touch, temperature, and common sensibility; some add to it the special sense of pain, while many other observers look upon pain as a mere exaggeration of the common sensations normally producing their effect without giving rise to any sharp change in consciousness, but when they assume a certain intensity they break in upon consciousness and produce a physical phenomenon which is termed pain. Pain is quite distinct from the sensations of temperature and touch, as is shown by the removal of the epidermis and by bringing into contact with the raw surface a sharp or hot body; there is failure to appreciate sharpness and heat, but the sense of pain is well retained. The different impulses which give rise to painful impressions are thought to pass up to the brain in the gray matter of the spinal cord. When this part of the cord is destroyed, as it may be in syringomyelia, the sense of pain is lost. In all visceral diseases, thoracic, abdominal, or pelvic, Head has shown that areas of pain and tenderness are developed which correspond as to the regional supply with the various spinal segments. These areas can be distinctly marked out, as they do not overlap to any great extent. They are the areas picked out by the eruption of herpes zoster as well as by the pain and tenderness of visceral diseases. Those areas of tenderness bear a definite relation to the different organs affected, so that one can speak of the ovarian, appendicular, tubal, or gastric area of tenderness. The pain of which a patient complains in visceral disease is not deep seated; it is purely cutaneous or subcutaneous, as can be demonstrated by picking up the skin gently between the finger and thumb.

There is considerable evidence to show that the viscera are insensitive. Observations made on animals which were subjected to various injuries of their internal organs, showed that the animals evinced no pain or discomfort. Careful clinical observations carried out on the human subject, where various organs were exposed during operative procedure, have equally demonstrated the insensitivity of the viscera, which may be cut, burned, or torn without eliciting pain. The pain that results from visceral disease, then, is due to afferent impulses arising in these organs which reach the nerve centres in the brain, there to give rise to the sensation of pain which is then referred to the peripheral distribution of these nerves in the body wall. Referred or sympathetic pain, is that variety which is transmitted to a healthy part of the body as a result of disease in another. In a lesion near the origin of the nerve, the pain may be felt at the periphery, at a lesion near the periphery it may be felt at the end of another branch of the same nerve. Absence

of tenderness in a painful region, generally but not invariably indicates that the pain is referred, and if pain confines itself exactly to the distribution of a nerve, the lesion will probably be found along the trunk or at the root of that nerve. The stomach is often the seat of referred pain. If general disease of the stomach is excluded, gastric symptoms should prompt a careful examination of the abdominal organs, particularly the appendix, the gallbladder, or the right genitourinary tract. Pain in the right shoulder points to hepatic disorders; in tuberculous hip disease pain is felt on the inner side of the corresponding knee. In uterine disease pain may be referred to the nipple, while occipital tenderness often indicates ovarian trouble. Renal calculus causes pain in the testicle or along the course of the ureter on the same side.

The character of pain has been variously described. Sharp lancinating pain is found in acute inflammations of serous membranes, in mucous membranes it is burning or smarting, in the urethra it is scalding. It is dull and heavy in large organs, gnawing and boring in bone disease. Shooting or paroxysmal pain is found in neuralgia, and pain in suppurative conditions is throbbing, and under dense fascia it becomes pulsatile.

As pain is a subjective symptom and cannot be justly measured by the surgeon, he is to a great extent dependent on the patient's statements, which are often misleading. To place a correct valuation on the intensity of pain, can be learned only by experience and careful study of human nature. Despite these difficulties, there are some rules to guide the surgeon in estimating the importance of pain. Complaints of severe and persistent pain in very young children are invariably genuine and it becomes the most important symptom in early life. The use of special names, as growing pains or rheumatism, should be suppressed, for they obscure symptoms and the real disease is often overlooked. In a child that is said to suffer from obscure rheumatic pains, it is almost certain that its troubles have nothing to do with rheumatism, and the sooner an investigation is made the more favorable is the prognosis. If we consider the countless number of cases of tuberculosis of bones and joints, where the early curable stage of the disease had been evinced by the onset of pain, but was neglected, the importance of interpreting the vague pains of childhood becomes apparent at once. In many diseases of old age there is not the same intensity of pain as in earlier years.

Pain is generally considered to be due to some definite cause. Since the surgical era began, the tendency has been to associate disordered function with definite pathological lesions of the various deep seated viscera. This has limited the term, neuroses, to a small and circumscribed field.

Commonly, neuralgia is used to signify any pain which shoots along the course of a nerve. The term was a very convenient one in former days when accurate knowledge of the causation of disease was obscure, but today the precise pathological findings give rise to more correct descriptive terms. Brachial neuralgia and sciatic neuralgia are no longer so named, but are rightly termed neuritis, and the lightning pains of tabes and the pain pro-

duced by herpes zoster are now known to be due to organic disease of the nervous system. Some of the idiopathic neuralgias have been explained by the referred pains of a diseased viscus, and the neuralgias that are secondary to some constitutional condition are most likely due to some toxic agent. Such neuralgias are commonly found in gout, diabetes, malaria, influenza, and syphilis. Probably a cause will be found for all neuralgias just as soon as the pathology of disease becomes known.

Chest pains of vague and indefinite nature can often be diagnosed and their true nature definitely determined by a thorough and systematic physical examination of the thorax. In diseases of the heart, pain often manifests itself as an important symptom, and is most likely to occur when the coronary arteries are affected. The causes which give rise to pain in the chest vary from a fatal angina, a serious tuberculous lesion of the lungs, a pleurisy or an occupational myalgia, mediastinal tumors, and enlarged glands. A correct diagnosis, therefore, is of the utmost importance.

It is in the abdominal region particularly that pain becomes a symptom of the most vital importance. The correct interpretation of the meaning of abdominal pain and the causes, often necessitates the performance of a more or less serious surgical operation. Failure to heed this warning or failure to reach a correct conclusion as to the cause, has been in the past and often still is responsible for the untimely ending of many valuable lives. Indecision in doubtful cases, or waiting to make an exact differential diagnosis in cases that require urgent surgical interference, is still responsible for the high mortality of surgical operations undertaken too late.

Umbilical or circumumbilical pain is a common sign of grave abdominal lesion, especially if the lesion is of intestinal origin. In an acute gastric ulcer the pain comes on suddenly, is felt most acutely in the epigastric region, and radiates to the back, while marked tenderness can be elicited over the spines of the seventh and eighth dorsal vertebrae. The chief tenderness is in the region of the stomach and is greatly aggravated by pressure. An area of extreme hyperesthesia of the skin, often localized, is commonly found in this region. The pain comes on immediately after taking food. In a duodenal ulcer, the pain comes on about two hours after the ingestion of food.

The pain in gallstone colic is of an excruciating character, exceeding in severity that due to almost any other acute abdominal condition. The chief cause is the muscular spasm of the cystic or common duct in the effort to propel forward the stone or a plug of inspissated mucus. The pain is felt in the right hypochondrium and epigastrium, radiating usually to the right shoulder. The entire region between the right costal margin and the umbilicus is extremely sensitive to pressure during the attack. Muscular rigidity in most cases is limited to the right rectus muscle. Mayo-Robson describes a spot peculiarly tender to light pressure, which is situated two inches from the middle line and slightly higher than the umbilicus; this, he considers, affords almost convincing proof of the presence of gallstones in doubtful cases.

Dietl's crisis in a floating kidney is associated

with attacks of severe colic, nausea, vomiting, and is caused by the kinking of the ureter due to the sudden descent of the kidney. The pain radiates along the ureter and the kidney is swollen and tender for several hours after the attack. The intermittent discharge of urine is characteristic of this condition.

In renal colic the pain usually begins in the back over the kidney and radiates down the ureter toward the pubes and thigh of the same side; the kidney is tender on palpation and the urine contains blood and often pus.

The pain in appendicitis, in the majority of the cases, is characterized by sudden onset. The pain at first is diffuse throughout the abdomen or it may be located about the umbilicus or in the epigastrium. Within twelve or twenty-four hours, the pain becomes localized in the right iliac fossa; the absence of pain in this region does not exclude appendicitis, for the pain may occur whenever the appendix may happen to be, as in the midline, or in the pelvis, or behind the colon. But such cases are diagnosed by considering the associated symptoms of rigidity, pulse, temperature, vomiting, and the general appearance of the patient.

The pain in peritonitis is accompanied by deep tenderness over the affected area. Firm abdominal pressure will relieve reflex abdominal tenderness, but in peritonitis it will exaggerate it.

Beside the more common intraabdominal conditions that give rise to pain, are diverticulitis, the various obstructions, perforations, pelvic conditions, inflamed glands, acute and chronic peritonitis, abdominal aneurysm, and neoplasms in various situations.

In all intraabdominal emergencies the surgeon must determine whether he is dealing with a trivial injury or with a serious perforation that demands immediate interference. If the patient is in a state of shock, the shock is treated, and when the patient has reacted, an attempt at a diagnosis should be made and a definite line of procedure be determined upon before morphine is given. If hemorrhage is associated with the injury, and if it is excessive and continues while the patient is in a state of shock, operation should be performed immediately regardless of whether the patient has reacted or not. This point is well illustrated in a ruptured ectopic gestation sac.

Pain occurring immediately after operation, or which begins during the first two, three, or more days after operation, is more of surgical than general interest. The use of narcotics at this time has been very greatly overdone. In the proper indications of extreme restlessness or pain, morphine is invaluable, but it should be reserved for these conditions.

When there is pain the second or third day after an abdominal operation, the three chief conditions to be considered are: Peritonitis, obstruction, and simple distention. The pains of distention and obstruction are colicky and wavelike, while that of peritonitis is more steady, diffuse, and unremitting.

Many lives could be saved, and thousands of others made more comfortable if physicians generally came to recognize that in nearly all cases of persistent abdominal pain of obscure origin, an explor-

atory operation is indicated. It is of the most vital importance to give careful consideration to pain that may be utilized in arriving at a diagnosis, and thereby remedy and often abort many of the calamities to which the human body is heir.

Pain is the doctor's *raison d'être*, and the relief of pain is still his primary function. Diagnosis and the prolongation of life come after. The ability to assuage suffering constitutes the physician's principal claim to the gratitude of his patient, and in truth there is nothing for which the victim is more grateful than for this manifestation of the healing art. It behooves the physician, therefore, carefully to discern, intelligently to interpret, and skillfully to alleviate nature's greatest warning—pain.

1226 SPRUCE STREET.

PHYSIOLOGICAL AND PATHOLOGICAL CHANGES IN THE ENDOMETRIUM.

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(From the Clinic of Dr. Howard C. Taylor.)

There are many variations in the histological pictures of uterine curettings, some of which are normal and some pathological. It is well understood that during normal menstrual activity there are definite progressive and retrogressive changes; in fact, there are constant physiological variations. These may be seen alone or may be encountered in company with pathological conditions and the natural and morbid states may be confounded. It is not infrequent that the true physiological changes may simulate or approach those of a real inflammatory reaction.

This interrelation of physiological and pathological states of the endometrium has long been a subject of discussion. Many gynecologists and pathologists have even held that true endometritis is extremely rare. They have endeavored to formulate general terms to embrace the various natural changes which approach the pathological. Such terms are the "chronic congestive edema" used by the older writers and the "hyperplastic endometrium" in use at present. Recently John G. Clark has drawn attention to the physiological variations occurring during menstruation and has emphasized the importance of considering the time of curettage when making a microscopical diagnosis of chronic endometritis.

There are changes which occur in the endometrium analogous to those of inflammation, but which are not abnormal when appearing in the peculiar and characteristic structure of the uterine mucous membrane. For instance, a moderate degree of glandular increase or change is not pathological, nor are glands distorted by the pressure of a surrounding congestion indicative of inflammation. During the premenstrual stage, during actual menstruation, and for several days after its cessation, scattered round cells may be found in the stroma. Unless associated with other manifestations, the presence of a few discrete round cells is

not a basis for the diagnosis of inflammation. Shortly before and during menstruation the finding of leucocytes in moderate number is not abnormal. At this time a stream of blood components is passing from the vessels into the stroma. Finally, subsequent to pregnancy, there are alterations in the uterine mucous membrane which are not of inflammatory nature.

True endometritis must be constituted by a combination of changes in definite degree. It is doubtful whether it is so rare as some would have us believe, especially when it is remembered that the interior of the uterus is frequently invaded by pathogenic organisms, particularly the gonococcus. However frequently true endometritis may occur, it is interesting to note that in a series of cases examined without reference to the menstrual cycle, mistakes may occur. It is not proposed to discuss here the histology of endometritis. We have simply taken from records a number of cases and studied the laboratory specimens and case histories in conjunction. The figures obtained show that a proportion of cases clinically considered as chronic endometritis do not appear as such when microscopically examined and, also, that a laboratory diagnosis may be made of chronic endometritis in cases not truly inflammatory where the curettings were removed near the time of menstrual activity.

In the cases used here the pathologist did not know the stage in the menstrual cycle at which the material was obtained. It is a custom in many large hospitals to send curettings and other material to the laboratory with a good history of the case, but with no record of the time of curettage relative to menstruation. Such information is valuable to the pathologist chiefly to further the perfection of diagnosis in his records. There is no question of malignancy and no harm is done by mistakes, but a more careful history would materially aid in a better understanding of the pathology of the endometrium. Only recently it became a routine procedure at the Roosevelt Hospital to state, in the history rendered to the pathologist, the time relative to menstruation when the uterine scrapings were removed. Knowing the periodicity of the patient, it is a simple matter to calculate the relation very closely. This is then entered in the history as — days premenstrual or postmenstrual, or as in the resting stage.

In an active service, where the majority of patients are curetted and the specimens subjected to routine examination, there are, of course, many cases of true endometritis. The cases here considered have been selected from a great number as best illustrating the subject under discussion, namely, the confusion of normal specimens, removed near the time of menstruation, with those of true pathological nature. The specimens studied were obtained within the limits of ten days before or after menstruation, the majority being much nearer the actual time. All the patients were under forty years of age and the operations were for more or less simple conditions. No inflammatory cases are included. Twenty-five patients were studied who had been curetted in the resting stage. These and all the others were reported as having chronic endometritis, chronic hyperplastic endometritis, glandular hyper-

plasia, and by other kindred terms. All were clinically considered as having endometritis.

After careful study of the specimens with reference to the case histories and special attention to the menstrual chart, we have revised some of these diagnoses. Of the 127 cases studied, eighty-eight per cent. were found to show the lesions of true inflammation. Sixteen cases (twelve per cent.) were found to be not inflammatory. This number is not large, but is sufficient to show how the changes incident to menstruation may be confounded with those of inflammatory conditions.

Of the cases curetted at the resting stage, all show the changes of true chronic endometritis. Here the histological changes are not associated with those of menstrual variation, and there is no percentage of error, even though the pathologist was in ignorance of the time of curettage. It is significant that, when the examiner is not confused with the alterations incident to menstruation, he can give a surer diagnosis.

In the sixteen cases considered noninflammatory we should prefer the term "essentially normal endometrium." True normal endometrium is rarely, if ever, seen. All of them show a varying degree of glandular change and, in a few there is some tortuosity of the glands. In a number (curetted very near the time of menstruation) the glands are somewhat broken down and mucoid material is occasionally seen in the acini. In several specimens leucocytes in small numbers are found in the stroma. Edema and extravasation of red blood cells are commonly seen.

The chief indications for curettage in these cases were the history of leucorrhea or a change in the character or amount of menstruation. In some cases there were both indications. These are, undoubtedly, symptoms and they usually evidence a pathological condition. But, in dealing with a structure like the endometrium, it is difficult to fix the border line at which physiological manifestations become truly pathological. It is not uncommon to see a patient whose menstruation is of longer duration or more profuse than the ordinary, and to find the endometrium to be essentially normal. Nor is a certain degree of secretion abnormal, as is proved by the frequency of premenstrual and postmenstrual leucorrhea. Finally, the history in regard to leucorrhea is not always reliable. A discharge may have its origin in the mucous membrane of the uterus, cervix, or vagina. The corporeal membrane may be normal when there is a discharge from an old lacerated cervix.

These statements are borne out to some extent in the statistics of our cases. Leucorrhea occurred in eighty-seven per cent. of those found to be truly inflammatory. It also occurred in the other cases, but seven of the twelve had lacerations of the cervix or pelvic floor, and it can be fairly assumed that the discharge did not emanate from the cavity of the uterus.

Increase in duration or amount of menstruation occurs in sixty per cent. of the inflammatory cases and in twelve per cent. of those curetted near the time of menstruation and found to be noninflammatory. Here is a wide difference and it shows that a change in the character of menstruation is typical of true chronic endometritis. In the noninflamma-

tory cases the menstrual variation was not marked.

Of the cases in which no inflammation was present, four were complicated with retroversion, a percentage of twenty-five. In these specimens the change nearest approaching inflammation was a certain degree of edema. More or less obstructive edema is usually present in cases with displacement and it is here that the so called "chronic congestive endometritis" occurs. Edema is a salient feature of the inflammatory reaction, but obstructive edema is not necessarily so. The edema attending displacements is most frequently associated with true inflammation, but, occurring alone as an obstructive edema, it is not genuinely inflammatory. The condition may be fairly termed "chronic congestive edema" rather than a variety of true inflammation.

In this series of cases revision of diagnosis is made in but a small number which, as stated, were curetted very near the menstrual period. Yet, this small proportion will help to show that proper recognition of the menstrual cycle will aid to more correct diagnosis. No question of malignancy is involved, and the treatment is practically the same whatever may be the diagnosis. In fact, except in cases of malignancy, the treatment is largely completed before the laboratory diagnosis is received. But more attention to the menstrual variations will further the advance of knowledge in the relationship between the natural and morbid conditions in the endometrium, of which there is still much to be learned.

128 EAST SIXTIETH STREET.

PERSISTENT COUGH REMOVED BY SPECIAL SURGERY.

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The general practitioner is meeting cases, of young people especially, who will complain mostly of one symptom, cough, for which they are seeking relief. The history in such cases is about as follows. The patient is troubled with a cough for the past few months or years, has been treated continuously by a number of physicians without improvement; family history, physical examination of chest are negative, repeated sputum examinations negative, general appearance and appetite fair, medication after medication, hygienic and climatic treatment have all been prescribed and followed with no decided improvement. Such cases, apparently hopeless, can be helped if we ascertain the underlying cause that produces the cough. With such a history one should always remember to examine the upper air passages and if not sufficiently qualified, to have the examination performed by a nose and throat physician. By so doing, he will be gratified, in the majority of cases, to learn that the persistent and irritating cough may be due to one or a combination of the following conditions: Nasal spurs, deflected nasal septum, adenoids, granular pharyngitis, elongated uvula, lingual tonsils, lingual varix, etc., conditions that can be remedied by appropriate surgical interference.

Out of sixteen cases of persistent cough—in my private practice—that have been benefited by surgical intervention, I will cite only two cases of persistent cough, the history of the remaining cases repeating itself with little variation except as to the cause.

CASE I. R. S., woman, aged twenty-five years, complained of coughing for the last eight years. She had been treated by a variety of physicians, having repeated chest examinations negative. She had been sent to the mountains, had been treated as a neurotic patient and with no improvement as to her cough. In spite of the persistent cough, her general appearance and appetite were good, she had not been losing weight. Family history negative. Repeated sputum examinations were negative.

Anterior and posterior rhinoscopy revealed the nose, nasopharynx, and oropharynx quasi normal. On laryngoscopic examination the larynx was found normal, but at the root of the tongue behind the circumvallate papillæ and just in front of the epiglottis I noticed two well developed mulberrylike lobulated masses of lymphoid tissue, one on either side of the median glossoepiglottic ligament, which represented an hypertrophied condition of the so called lingual tonsil. The diagnosis was made, hypertrophy of the lingual tonsil, and an operation for the removal of same advised.

On October 3, 1913, I removed both masses at once and since then the patient states that she has been relieved from her cough. The persistence of the cough for eight years, and the complete cessation of this most obstinate symptom immediately after the operation, and the continuation of the improvement up to the present time, are sufficient reasons—I believe—not to attribute the outcome of the operation to mere coincidence.

CASE II. Mrs. G. A., aged twenty-seven years, referred to me by Dr. A. Granet. Family history negative. The main complaint for which she came to be relieved was a persistent cough of about three years' duration.

She had been treated by her physician on and off, and seeing no improvement, had been advised to see a consultant. After a thorough examination by the latter, including sputum, urine, blood pressure, etc., he could not find any cause for the cough, and therefore—for the sake of completeness—advised the family physician to send the patient for an examination of the upper air passages. On October 18, 1914, she was referred to me. The pinched nose (showing that the patient had done very little nose breathing); the irregularity of the teeth; the deeply arched palate (proving that the patient was a mouth breather from early childhood); and the mucus like white of egg coming down the posterior pharyngeal wall, were so many proofs of the existence of hypertrophy of Luschka's tonsil. Posterior rhinoscopy and digital examination of the nasopharyngeal cavity made the diagnosis of adenoids a certainty; anterior rhinoscopy showed nothing abnormal. The patient was told of the existence of the adenoids and the advisability of their removal. On October 21, 1914, I removed the adenoids. Four days later the patient noticed that the cough had almost entirely disappeared. On December 28th, she reported to my office, totally relieved of her cough.

In the foregoing two cases, the writer hopes that he has been able to show that the principal complaint of the patients was persistent cough, which has been removed by surgical intervention. In order to avoid repetition I shall give a synopsis of the sixteen cases with causes of the persistent cough:

Lingual tonsil	5
Lingual varix	2
Adenoids	2
Nasal spurs and enlarged posterior tips of inf. turbin..	3
Elongated uvula	2
Granular pharyngitis	1
Enlarged middle cystic turbinate, deflected nasal septum, and lingual tonsils in one patient.....	1

In these sixteen cases, I was unable to foresee that the removal of the particular abnormality would remove the cough, and I have always so told the patient, also his or her physician, because in very many nose and throat cases, we meet these conditions without cough. Why in one patient the condition will produce cough, whereas in another one it will not, I am unable to say. In conclusion I will say that whenever a patient complains of a cough that is intractable to medicines for some time; when repeated chest examination do not reveal any physical signs to account for it; when there is a negative family history; when repeated sputum examinations turn out to be negative; when the general appearance and appetite are fair or excellent; when there is no loss of weight, etc.; in other words, when the train of symptoms that accompany a serious constitutional disease is lacking; it is always good to remember that an examination of the nose and throat may solve the complicated problem.

218 EAST FIFTEENTH STREET; 179 FORSYTH STREET.

SCOPOLAMINE-MORPHINE-COCAINE ANESTHESIA IN SURGERY.

BY ADDISON G. BRENIZER, M. D.,
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Investigations (Crile) have shown that, while inhalation anesthetics prevent the feeling of pain, they do not prevent the pain impulses originating at the site of the wound from reaching the brain. These pain impulses cause exhaustion of the brain cells which brings about shock more or less profound.

On the other hand (Crile, Moynihan), local anesthesia, although it does block the pain impulses between the wound and the brain at the site of the wound, still it cannot prevent the destructive psychic strain from which patients operated on under local anesthesia alone must suffer. In order to obtain true anociassociation (Crile and Lower), both a local and general anesthetic must be employed.

To bring about the condition of anociassociation I have used scopolamine as a psychic depressant, morphine as a general analgesic, and cocaine as a local analgesic. Added to the local analgesic effect of the cocaine through its pharmacological action, the physical presence of large quantities of salt solution used to convey the cocaine, not only aids in the local analgesic effect, but also renders the muscles much more lax. It is indeed this relaxed condition of the muscles, brought about largely through fluid pressure, which makes the combination of scopolamine, morphine, and cocaine a possible substitute for the inhalation anesthetics.

The action of scopolamine as a hypnotic differs from that of opium and from the members of the methane series. It is less reliable, but the sleep resembles much more nearly natural sleep. Usually scopolamine given in small doses at long intervals produces a marked sensation of fatigue and drowsiness followed by a condition in no way dissimilar to natural sleep. The gradual approach of this sleep after the hypodermic administration and its

physiological resemblance to natural sleep do much to dispel the psychical strain of general anesthesia and of the inhalation anesthetics. Sleep lasts from five to eight hours and a somnolent condition may persist for several hours longer, thus necessitating no haste in beginning the operation. Scopolamine depresses the brain in very small quantities, 1/120 grain being generally sufficient to cause sleep. It does not seem to be very dangerous, for one twelfth grain has been recovered from in man without injury, and seven and a half grains given to a small cat did not kill the animal. In some cases a short stage of excitement, with giddiness, uncertain movements, and difficult and indistinct speech, precedes sleep. A wait of sufficient time between doses and before the beginning of the operation, will allow this period to blend with the long period of hypnosis. Very large doses do not cause deeper sleep, but give rise to delirium and excitement resembling those following atropine. The overdose is avoided, as stated already, by injecting small doses properly spaced. Scopolamine also decreases the secretion of saliva and mucus, offering through this action a real advantage when combined with morphine or ether, both of which stimulate these secretions. The slight fall in blood pressure, after scopolamine in small doses, due to a peripheral dilatation of the vessels and the slowing of respirations, are unimportant. Scopolamine, however, does not cause a high degree of analgesia.

All the effects of scopolamine (cerebral depression, diminution of saliva and mucus, and slowed and quiet respirations) are of the greatest advantage in operations done on the neck, specially in goitre operations. I am not at all sure that scopolamine does not actually cause a temporary decrease in the secretion of the thyroid gland. It has acted extremely well in all my cases of exophthalmic goitre. Not one of the objections (not even increased bleeding) pointed out in labor cases prevails here.

Morphine, especially in large doses, produces great depression of the central nervous system, which is especially marked in the psychical functions, but spreads over the lower parts of the nervous axis and involves sooner or later the respiratory centre. This depression does not affect so much the motor areas as the powers of the will and attention. The failure of respiration closes the course of the intoxication. In man, comparatively small quantities are sufficient to deaden or even entirely remove the pain of the disease without rendering the patient unconscious. The intelligence is not so acute as normally, but the patient answers questions and converses freely, and may even seem abnormally sensitive to impressions caused by loud noises or bright flashes of light. Slight stimuli are therefore perceived more slowly, while a stronger impression is perceived and acted upon after the usual interval. The drug has no effect upon the sensory organs themselves, but merely renders them apparently less sensitive through lowered perception owing to the central depression. Since morphine, so far as has been proved, has no peripheral action (Nothnagel), the lessened peristalsis of the intestines and contractions of the uterus, as well

as the effect on the sphincters, are thought to be due to a stimulation of the centre in the cord inhibiting these involuntary movements. The facts, on the other hand, that morphine is excreted by the intestinal epithelium and that pituitrin may restore the peristalsis and the contractility of the uterus, would point to a local action.

Scopolamine and morphine, separately or combined, have but a slight effect upon the motor areas of the cortex and no direct local action upon the voluntary muscles. A failure of the muscles to contract after light stimuli is accounted for by a lowered perception and apperception due to the actions respectively of morphine and scopolamine on the brain.

The symptoms of cocaine poisoning are variable in different individuals; some patients show a rather marked susceptibility. This tendency must be very rare, however, for I have never seen it exhibited beyond some excitement, slight nausea and headache, acceleration of the pulse and respirations. The action on the central nervous system is one of stimulation and, after very large doses, a subsequent depression. The central action, following the dose used, is of far less importance than the action on the sensory nerves. Furthermore, even after a dose of two and a half grains the stimulating action of cocaine seems to be entirely lost in the presence of the depressing action of scopolamine and morphine. Scopolamine and morphine are pharmacologically antagonistic to the stimulating effect of cocaine on the central nervous system, the respirations, and the circulation. Certainly, in the presence of these drugs, very much larger doses of cocaine may be used for its peripheral action on the sensory nerves without an evidence of a central action.

Cocaine, whether injected into the periphery, around or into the sensory nerve trunks, or into the rhachidic space around the spinal cord, may block the pain impulses going centralward. This action is also selective for the motor endings and trunks are little or not affected. Even the sensations of warmth, cold, and touch are preserved to some extent.

During the last fifteen years almost all the major operations have been done under cocaine as a local anesthetic, and in the hands of a number of surgeons this anesthetic has become a lively rival of ether and chloroform. The method introduced by Schleich under the name of "infiltration anesthesia" has received, perhaps, the widest use. Schleich used a one hundredth of one per cent. cocaine in normal salt solution (that is one and a half grains cocaine to 1,000 c. c. of salt solution) and injected up to 200 c. c. of this solution (three tenths grain cocaine). A minimum quantity of cocaine is thus used. Schleich attributed the anesthesia partly to the pressure exerted by the fluid and partly to the imbibition of the cocaine by the nerves.

A number of later investigators have believed that the anesthesia depended on the cocaine alone. This, however, cannot be true, because almost complete anesthesia has been gained under light fluid pressure alone, and sodium chloride, even in the concentration of 0.8 per cent., possesses anesthetic

properties. Heinze did show that the morphine contained in Schleich's original fluid was superfluous; that morphine had no peripheral action on the nerves.

The normal salt solution, used in quantities of from two to eight ounces, is not only an important adjunct in accentuating the anesthesia due to inhibition of the cocaine, but serves also, when injected into the muscles under light pressure, the part of relaxing the muscles by breaking the nerve muscle and the muscle fibre contact. This I have proved to my satisfaction in numerous cases. In one case of spasmodic torticollis, where the movements given the head were due mostly to contractions of the sternomastoid muscle, I saw the muscle cease to contract and become flabby for several hours after filling the sheath of the muscle with salt solution under some pressure. The contractions of the muscle returned several hours after the absorption of the salt solution.

Schneiderlin showed that by the use of a combination of scopolamine and morphine a deep anesthesia accompanied by almost complete analgesia could be reached. For operative purposes the mixture of these drugs was first employed by Korff, before 1899; he made subcutaneous injections of scopolamine one sixtieth grain and morphine one sixth grain four hours, then two hours, and for the third time, a half hour before the operation. Altogether, he gave about one twentieth grain scopolamine and one half grain of morphine. Korff was able, in this way, to do a number of major operations without other anesthesia.

Blos repeated the work of Korff, but lowered the dose of scopolamine and raised the dose of morphine as high as one and a half grain. Blos administered his initial dose two hours before the operation and a second dose one hour before the operation. He was able to operate in two thirds of his cases without the aid of other anesthesia, but in the remaining one third of the cases he had to give small doses of ether to complete unconsciousness and muscular relaxation. Out of seventy anesthetics, where no other anesthetic was used, nine cases showed slight disturbances in respiration (the heart action was not disturbed). In one case there was a death from failure of respiration.

It was shown by later publications, Blos agreeing, that the ill results of Witzel, Wild, and Flatau, were due to the excessive amount of morphine in the doses of Blos. Krönig pointed out that the troubles in respiration experienced by these observers, agreed with the pharmacological action of morphine and not of scopolamine. Accordingly, Krönig and Döderlein used the dose of scopolamine (one sixtieth grain and grain 1/120) as prescribed by Blos, but reverted to the dose of morphine (about one third grain) as originally prescribed by Korff. With these doses these observers concluded, however, that they could not gain complete enough local analgesia and muscular relaxation to allow them to perform their gynecological operations. On the other hand, they recommended heartily the partial replacement of the inhalation anesthetics by scopolamine and morphine in smaller doses.

A great many surgeons have used scopolamine and morphine as a partial substitute for the inhalation anesthetics; the preliminary hyoscine and morphine was recently the order of the day. More important still, the injection of these drugs is included in the technic of induction of anociassociation as employed, especially, by Crile and Moynihan. Crile says that these drugs "mitigate the pre-operative dread and facilitate the induction of anesthesia." Crile gives scopolamine grain 1/150 and morphine one sixth grain one hour before the beginning of an inhalation anesthesia, and Moynihan scopolamine grain 1/100 and morphine one sixth grain a half hour beforehand. Beyond the light sleep brought on by these doses, Crile states that morphine serves the double purpose of diminishing the psychic strain and of actually preventing, to some extent, the damage to the organs of the kinetic system by the trauma of the operation. "That deep morphinization will almost completely prevent shock has been abundantly proved in both the laboratory and the clinic."

Technically, I use scopolamine and morphine in surgery in the following way: One and a half hour before the operation I inject scopolamine grain 1/100, and a half hour later I repeat the dose of scopolamine along with morphine one quarter grain and finally, still another half hour later, I repeat both the doses of scopolamine and morphine. Occasionally, the third injection can be omitted. The patient receives during the course of an hour and a half scopolamine grain 1/300 and morphine one half grain. After this dose and the expiration of the time allowed, eighty per cent. of my patients have been found quietly sleeping, respirations and pulse somewhat slower than normal, the face slightly cyanotic, and the lips dry. The blood pressure is usually somewhat lowered. Some of the patients are aroused by being conveyed to the operating room, but they mumbled a few incoherent words and look upon the whole manipulation with almost absolute indifference. As many as sixty per cent. of the patients have no recollection of what happened just before, during, and for several hours after the operation. In about fifteen per cent. the action is incomplete, that is, perception is fairly clear, apperception dulled, and the memory pictures confused. In about five per cent. of the cases, the memory is considerably disturbed, but the patient is restless and fretful.

The great majority of the cases of incomplete action of the drugs (fifteen per cent.) can be treated as if the action were complete, but a few of these must be treated like those who show excitement (five per cent.).

In about ninety per cent. of cases where scopolamine and morphine are used, as I have indicated, the patient is conveyed to the operating room as quietly as possible, the eyes are covered, and all unnecessary noises avoided. The suggestion of placing a black cloth over the eyes and of stopping the ears with cotton soaked in alcoholene is a good one. By the use of a twenty c. c. glass syringe and a fine slender needle, the structures are infiltrated with a one to 1,000 solution of cocaine in normal salt solution. The amount used rarely exceeds 150 c. c.

(five ounces) containing one of the commercial tablets of cocaine, 2 28/100 grains. A small quantity is infiltrated into the skin, into the fascia, then through the fascia under pressure into the muscle, and finally just beneath the transversalis fascia over the peritoneum. When too much cocaine is used, the muscles may be injected with normal salt solution alone. I performed at least one hysterectomy and four goitre removals under scopolamine and morphine where only the skin was injected with one to 1,000 cocaine, and the patients were not aware that the operation was taking place.

In the remaining cases (ten per cent.) where the action of scopolamine and morphine is very incomplete, and where the patients are restless and fretful, they are given ether. The amount of ether required to produce sleep is very small, not over a few drams, and in this quantity it produces none of the ill effects of the drug, either immediately or after the operation. In these latter cases the condition, just before sleep is reached, is one of being swayed between wakefulness and sleep, and the smallest quantity of any of the inhalation anesthetics will throw the balance on the side of sleep. Once the patient thus falls asleep, he usually remains asleep throughout the operation, without additional help from the inhalation anesthetic.

After the use of scopolamine and morphine, especially after the maximum dose of morphine, there is occasionally considerable distention, perhaps somewhat more than after the inhalation anesthetics alone. As means of counteracting the intestinal paresis, cocaine exerts a stimulating action, and pituitrin increases peristalsis and restores the tone of the musculature most admirably.

I have obtained very satisfactory results in the following classes of cases, covering the whole body, where scopolamine and morphine were used as an entire substitute for an inhalation anesthetic, and where cocaine was used along with large quantities of normal salt solution to block the pain impulses and render the muscles more or less lax:

1. Head and neck (1). Ablation of the ophthalmic branch of the fifth nerve to the depth of the orbit (2). A number of thyroidectomies in cases of both large cystic goitres and exophthalmic goitres. Usually I do not have to infiltrate the structures in the neck beyond the skin, and I have not seen any evidence of discomfort. These cases remain absolutely quiet, the bleeding is easily controlled, there is no necessity for hurry, there is no shock, and the postoperative course is splendid. I feel that scopolamine has a depressant action on thyroid secretion. In all goitre cases, where the action of scopolamine and morphine is complete (I have never had a case in which the action was not complete), one could not wish for a better subject to operate on.

2. Chest. An overlapping rib was resected and wired without the knowledge of the patient.

3. Abdomen. A number of appendicectomies, the appendix free and surrounded by dense adhesions, a gastroenterostomy, several suspensions of the uterus, a hysterectomy, clearing up an extra-uterine gestation, etc. One particularly interesting case was the removal of a stone by another surgeon

from the bladder of an old man sixty-nine years old. This case had a blood pressure of 205 and badly insufficient kidneys. The operation and afterperiod were splendid.

4. Hernias. Inguinal, femoral, and ventral hernias offer easy operations. In two ventral hernias, the omentum and intestines were densely adherent to the abdominal wall.

5. Vagina and perineum. Operations on the cervix and repairs of vaginal walls and the perineum are easily accomplished under the doses indicated above. Dilatation and curettage can be done under half the dose.

6. Extremities. I was able to chisel out the shaft of the tibia in a case of tuberculous osteomyelitis without pain to the patient.

7. Examinations. Half the doses given above is sufficient to allow one to do cystoscopic examinations, soundings, and examinations of young and sensitive women.

As advantages of scopolamine morphine anesthesia alone, certain points must be clearly noticed:

1. Giving of the injections an hour and a half before the operation, while the patient is lying quietly in bed and the gradual approach of drowsiness, followed by deeper and deeper sleep is more humane and the sleep is more like natural sleep.

2. The patient does not know when she is removed from the room and placed on the operating table; there is no fear.

3. The patient is undisturbed by the injections of cocaine (the beginning of the operation) or by the induction of an inhalation anesthesia. When an inhalation anesthesia is used, the patient passes quietly under its influence without experiencing the usual unpleasant sensations of suffocation, sinking into space, etc.

4. The breathing is quiet and smooth, not rough and snoring so as in any way to interfere with the operation.

5. There is little or no accumulation of mucus and saliva to obstruct breathing or dirty the field of operation in head and neck case. Vomiting is extremely rare.

6. There may be a depressant action on the over-secreting thyroid gland through the effect of scopolamine, making this anesthesia specially favorable in goitre cases.

7. The ill effects after operation, like nausea, vomiting, and headache are almost always absent.

8. The pain in the wound and pains generally after operations, are not so great, because the effects of the injections, in some degree, last for hours.

9. Shock during and after the operation is largely done away with by dispelling first the fear of the pending operation and through the action of these drugs in reducing the force of the pain impulses generally. The injections of cocaine block the pain impulses locally.

10. The insufficient local analgesia and muscular relaxation can be sufficiently overcome by injections of dilute cocaine along with large quantities of normal salt solution, to allow the performance of the majority of abdominal operations.

BLANDWOOD APARTMENTS.

MUCOUS MEMBRANE IN THE FASTING STOMACH CONTENT.*

By EDWARD A. ARONSON, M. D.,
New York,

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This paper is based on a study of 400 cases presented in the Department of Gastrointestinal Diseases, of the Mount Sinai Hospital Dispensary during the past year. The routine employed in this department requires the study of the stomach content, both in the fasting condition and after the use of a test breakfast, in every patient in whom there is no contraindication to the passage of a stomach tube. Each patient is given a test diet the night before his appearance at the clinic, in order to determine the motility of the stomach, and is told to present himself in the fasting condition, and then the stomach contents are aspirated. This is followed by the test breakfast which, after the appropriate time, is again aspirated.

The fact that all stomach contents are aspirated and not expressed may perhaps have attracted attention. As we know, there are two methods for obtaining the stomach contents, aspiration and expression, and each method, to the exclusion of the other, has its respective adherents. The faults of the expression method may be said to be failure to recover any contents, incompleteness, time required, effort on the part of the patient, uncleanness. Those who object most strongly to the aspiration method do so because they believe it may be followed by laceration of the mucous membrane, exfoliation of fragments, hemorrhage, etc.

The aspiration of stomach contents has every advantage over expression, inasmuch as it is cleaner, requires less time and effort on the part of the patient, there is rarely a failure to recover the contents, and it is more likely to remove fragments of the mucosa. I may say here that the aspiration is now more frequently employed in most clinics. The method merely requires the attachment of a modified Politzer bag to the proximal end of the stomach tube, having previously compressed the bag so as to obtain the contents by suction.

In this series of 400 cases we were enabled to recover pieces of mucosa in at least thirty-eight cases. It must not be concluded that such fragments of the mucosa can be removed only by aspiration, for they may be obtained after permitting a patient to express his stomach contents. While I mentioned the fact that fragments were removed in but thirty-eight cases and seen only in the fasting stomach content, I believe it occurred much more frequently, since it is impossible to find them when mixed with the aspirated test breakfast.

These fragments of mucosa varied in size from perhaps three eighths of an inch in diameter to those measuring an inch and one half long, one inch wide, and in some instances almost one sixteenth of an inch in thickness. These fragments were immediately examined microscopically to convince ourselves of their real nature. The removal of these pieces, which was always accidental rather than in-

tentional, was never followed by hemorrhage nor other ill effects, and after watching these patients for six months or more, in none did symptoms occur in any way suggestive of the formation of an ulcer.

Boas states that in a large number of instances, he recovered portions of the mucosa in varying stomach conditions, and he was really the first to utilize such specimens for diagnostic purposes. He believed that we may thereby ascertain through the microscopical examination, the exact morbid anatomical lesions. Boas also states that he has never in any case noticed ill effects to follow the removal of such pieces of mucous membrane. Such removal may easily occur in all forms of chronic gastritis. He has employed the examination of such portions to differentiate between a neurosis and a catarrhal condition.

Many others, Cohnheim, Hayem, Einhorn, Lenk, Martius, Hemmeter, have since made a study of these fragments of tissue. They always regarded the condition as significant of the marked vulnerability of the stomach mucosa. Faber says it is impossible to differentiate with certainty between a natural and artificial exfoliation. It is, of course, of the greatest diagnostic value to find specific elements of carcinoma, but they rarely aid in making an early diagnosis as they are usually found after the disease is well established.

Strauss employs the tube in the fasting stomach to determine the vulnerability of the mucous membrane. By moving the end of the tube to and fro, withdrawing and then lavaging, he attempts to recover fragments. If he is successful, he regards it as a good differential aid in distinguishing between an achylia and a carcinoma of the lesser curvature. He says it never occurs in the former, but may be present in the latter. Martius contradicts this, however, and says that he obtains fragments of mucosa in every case of achylia. Riegel remarked that he frequently observed the tearing off of small portions of the mucous membrane during the emptying of the stomach of its contents and that no harmful results were ever noticed. The question of its occurrence only when the mucosa is diseased cannot be accepted.

On account of its comparatively frequent occurrence in our series of cases, we determined to examine these specimens microscopically, in order to note, first, the portion of the stomach from which they were obtained; second, whether any pathological lesion existed; third, the character of such a lesion; fourth, the establishment of a connection between the clinical and pathological diagnosis. Microscopical examination was performed in nineteen of the thirty-eight cases by Dr. George Baehr, to whom I am greatly indebted, in the pathological laboratory of the Mount Sinai Hospital.

The following is a short summary of those cases, with the clinical diagnosis and the laboratory report of the microscopical examination:

1. Vagotonia. Marked gastric symptoms. Normal secretion. Report: Pyloric end, intense congestion and edema of the interstitial tissue in the most superficial part of the mucosa. Occasional small hemorrhages.
2. Cholelithiasis and myocarditis. Moderate gastric symptoms. Normal secretion. Report: Pyloric end, normal.
3. Chronic endocarditis. Marked gastric symptoms.

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Subacid secretion. Report: Pyloric end, slight superficial edema. Few small hemorrhages. Moderate number of plasma cells.

4. Chronic appendicitis. Marked gastric symptoms. Normal secretion. Report: Pyloric end, numerous smaller and larger interstitial hemorrhages.

5. Chronic subacid gastritis. Mild gastric symptoms. Subacid secretion. Report: Probably pyloric end, mucous membrane edematous down to the neck of the glands. Numerous eosinophiles at the level of the neck of the glands and a clump of polynuclears in one of the crypts.

6. Incomplete diagnosis. Marked gastric symptoms of but five weeks' duration. Hyperchlorhydria and hypersecretion. Report: Pyloric or cardiopyloric, marked lymphoid hyperplasia; numerous follicles just above the muscularis mucosa, some with large germinal centres. Small foci of polynuclears with some eosinophiles around the deeper portions of the crypts and neck of the glands. The lumen of an occasional crypt is filled with polynuclears and the latter can be seen migrating through the epithelium. Eosinophiles very numerous in places.

7. Chronic subacid gastritis. Marked gastric symptoms for fourteen months. Subacid secretion. Report: Pyloric end, multiple small interstitial hemorrhages.

8. Chronic constipation. Moderate gastric symptoms. Hyperacid secretion. Report: Pyloric end, few small interstitial hemorrhages, probably traumatic; moderate congestion.

9. Incomplete diagnosis. Mild gastric symptoms. Normal secretion. Report: Pyloric or cardiac pyloric, very slight changes; few scattered polynuclears and eosinophiles.

10. Chronic cholelithiasis. Marked gastric symptoms of five months' duration. Normal secretion. Report: Pyloric end, only superficial parts of the crypts seen; interstitial tissue densely infiltrated with round cells.

11. Chronic subacid gastritis. Mild gastric symptoms for two years. Subacid secretion. Report: Pyloric end, intense congestion.

12. Chronic constipation. Marked gastric symptoms of one week's duration. Normal secretion. Report: Pyloric end, there are numerous polynuclear leucocytes in places in the superficial mucosa. In the neighborhood of the neck of the glands are many eosinophiles, in places as many as a dozen to a high power field.

13. Chronic subacid gastritis. Marked gastric symptoms for one and one half year. Subacid secretion. Report: Pyloric end, many scattered polynuclears, eosinophiles, and plasma cells in the deeper interstitial tissue.

14. Chronic colitis and postoperative adhesions. Moderate gastric symptoms for fifteen years. Normal secretion. Report: Pyloric end, there are a few places in the wall where the lymphatics are filled with polynuclears. Occasional crypts contain a small collection of polynuclears.

15. Gastrocoloptosis. Mild gastric symptoms for twelve years. Hyperacid secretion. Report: Pyloric end, occasional small foci of infiltration consisting of polynuclears with some round and plasma cells; also an occasional edematous area in which the eosinophiles are especially numerous.

16. Chronic subacid gastritis. Marked gastric symptoms for eight years. Subacid secretion. Report: Pyloric end, extensive inflammatory lesion in the superficial third of the mucous membrane. In areas where the infiltration is most extensive, it extends more than half way to the muscularis mucosa. It is densest in the region of the neck of the glands, fading toward the surface of the mucous membrane. The infiltration consists chiefly of polynuclear leucocytes, but plasma cells, especially eosinophiles, are exceptionally abundant. In the deeper part of the infiltration, the eosinophiles are in places almost as abundant as the neutrophile leucocytes.

17. Chronic constipation. Mild gastric symptoms. Hyperacid secretion. Report: Pyloric end, numerous interstitial hemorrhages, one very large hemorrhage.

18. Chronic colitis and postoperative adhesions. Moderate gastric symptoms for fifteen years. Normal secretion. Report: Pyloric end, normal.

19. Hyperthyroidism. Moderate gastric symptoms for two years. Normal secretion. Report: Pyloric end, diffuse infiltration of interstitial tissue with round cells in several places. At one place on the surface is a clump of polynuclears.

What is the significance and what diagnostic value has the recovery of fragments of the gastric mucosa in the stomach content?

An absent area of mucosa in any stomach is termed an erosion. Erosions may be single or multiple and invade only the more superficial portion of the mucous membrane. As a rule they heal completely and rapidly, leaving no trace of any loss of continuity. The development of an ulcer from an erosion is very rare. We still believe that in the formation of a gastric ulcer, there are two essentials, an area of diminished local resistance due to some nutritive or vascular change, and the digestion of this devitalized area by gastric juice. For self digestion to occur, a certain amount of peptic power of the gastric juice is generally considered necessary.

It is a well known fact that ulcers experimentally produced heal rapidly and run a very mild clinical course. It is the universal experience, moreover, that frequently in extracting test breakfasts, small pieces of the mucous membrane of the stomach are forcibly torn loose and that ill results from such a traumatism are extremely rare. It is therefore plausible that a very large number of acute ulcers run a latent course and heal rapidly and completely. Other ulcers, however, do not tend to heal, but persist and eventually give symptoms. Matthes showed that, after cutting out a piece of the mucosa of the stomach, muscular contraction closed the defect, thus protecting the denuded area from further erosions by the gastric juice. Whatever the pathological condition reported from the examination of our specimens, surely the lesion was not confined to those portions, but must have extended over a greater or less area in the mucous membrane of the stomach.

One question which presented itself, was whether normal mucous membrane could be removed in the ordinary routine of extraction by the aspiration method. In our series, we found the mucosa entirely normal in three cases, in five there were either slight superficial or interstitial hemorrhages evidently due to trauma, but in the remaining cases there were changes ranging from a moderate edema and marked congestion to dense infiltrations in the interstitial tissue with large numbers of polynuclear leucocytes, eosinophiles, and plasma cells.

The specimens which showed the greatest changes were mostly from cases of chronic subacid gastritis in which the gastric symptoms had lasted for a long period. In some it was difficult to account for the marked changes when we consider the short duration of the history and the mild course of symptoms. All had some gastric symptoms, although an organic stomach lesion could not be diagnosed in each case.

Another point of interest was that in each case the fragment was obtained from the pyloric end of the stomach. One would perhaps expect that with the removal of portions of the mucous membrane, of such an extent as some of ours, an ulcer should follow, particularly when we consider the powerful peristaltic contraction forcing the food over the denuded area and bringing the acid chyme into prolonged contact with the erosion. It was also evident that the fragments were not exfoliations from the pyloric sphincter, otherwise there would have been symptoms suggestive of a true pylorospasm. The

reflex spasm of the pyloric sphincter would be analogous to the spasm which occurs in cases of anal erosion or ulceration.

In no one of our cases did pain, hemorrhage, or ulcer follow. The failure of hemorrhage or ulcer to follow may be explained perhaps by the tetanic contractions of the muscularis mucosa and the possession by the stomach of some protective influence which we do not understand.

The diagnostic importance of the finding of mucosa in the stomach content is purely relative and not absolute. As mentioned above, the microscopical examination may show normal tissue, or such lesions as a marked interstitial inflammation in cases which, clinically, may differ entirely with what is expected from the pathological examination. The greatest value from a diagnostic standpoint is naturally in unsuspected or even suspected gastric malignancy, where no mass is palpable. Here the early diagnosis from the pathological laboratory would be appreciated, but unfortunately when mucosa can be withdrawn through the tube, it occurs as a rule when the lesion is far advanced and the diagnosis has already been made by other means.

In conclusion, I wish to emphasize the fact, first, that no ill effects such as hemorrhage or ulcer follow from the exfoliation of gastric mucous membrane, either by expression or aspiration through the stomach tube; second, the sectioning and microscopical examination of these specimens is of undoubted aid in arriving at a more exact diagnosis; third, that in cases of a chronic subacid gastritis, the mucous membrane is decidedly more vulnerable than in other gastric lesions; fourth, that the aspiration of stomach contents has every advantage over expression.

119 WEST SEVENTY-FIRST STREET.

HYSTERIA AS A CONSTITUTIONAL DISORDER.*

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Hysteria is derived from a Greek word, *hysteron*, meaning not only a womb, but also the condition which was known to the Greeks, and as late as the seventeenth century to the English, as the spirit of the mother. See *King Lear*, for example (act II, scene 4).

Oh, how this mother swells up toward my heart,
Hysterica passio! down, thou climbing sorrow,
Thy element 's below.

Plato (*Timæus*) says the spirit of the "mother" becoming discontented and angry closes up the passages of the breath and, by obstructing respiration, drives to extremity, causing all varieties of disease. Hippocrates and Aretæus (1), called the Esquirol of antiquity, had the same opinions. Aretæus adds that the spirit of the womb delights in perfumes and flees from stench; hence the use of asafoetida from very remote periods. Smollett, in *Humphrey Clinker*, makes a satirical defense of the absence of sani-

tary conveniences in Edinburgh on the ground that stench prevents hysteria.

HISTORY.

Galen, who took only gross lesion conceptions, denied the movements of the womb as a necessary part of hysteria. Reginald Scott, in 1588, and Harsnet, in 1603, analyzing witchcraft and miracles performed by shrines, relics, and exorcisms, charged all the conditions that these cured or caused to the existence of the influence of the "mother" on the afflicted person. In the seventeenth century (1618) Charles Lepois struck the first blow at the local origin of hysteria. He showed that it occurred at all ages and in both sexes; that its seat was not the womb but the brain, and that it must be considered a nervous disorder. In the first half of the seventeenth century this view was strongly supported by the great English neurologist Willis, and, in 1681, by the great clinician Sydenham. As has so often happened in history, there was a return to the womb conception in the middle of the eighteenth century and in the latter decades of the nineteenth. These last returns were largely due to the influence of anesthesia and antisepsis which made operative procedures safe and lucrative. In the late seventies and early eighties a most ludicrous reversal of procedure took place. Marion Sims had charged hysteria and numerous other conditions to cervix stenosis, which was slit and dilated for these. In the eighties, under the influence of Emmet's doctrine of cervical laceration, the same gynecologists sewed up the slits they had made for "cure" of hysteria on the ground that they were its cause.

NOSOLOGY.

The outline just given summarizes the views held today as to the nosological position of hysteria. Among working scientists, the seventeenth century position of Lepois has continually gained favor; every new discovery in psychiatry, nervous anatomy and neurology steadily served to make it clear. The increasing knowledge of inhibitory centres, of the local functions of the sympathetic system, of the embryonic metameric (nervous system and skin come from the same germ layer) nervous system have served to demonstrate more fully the position of Lepois. Today the nosological position of hysteria may be summed up as that of a congenital or acquired nervous instability which makes excessive responses in a psychic, sensory, motor, trophic, dermic, optic, otic, hepatic, renal, pulmonary, cardiac, or joint direction to slight excitants coming from within or without.

There are no pathognomonic symptoms of hysteria; that is to say, as with other constitutional disorders, the congeries of symptoms and the conditions under which they occur diagnose hysteria. The emotional instability is found in other conditions than hysteria, is not always present in hysteria, and may occur under emotional strain in normal persons. The bandlike anesthesia held to be characteristic is found in other conditions and is not always present in hysteria. Hysteric contractions do not differ markedly from other contractures; indeed, until 1837, when they were first pointed out by Brodie (2), they were regarded as organic paralyses and organic joint disease. Duration, as Bro-

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die showed sixty years ago, is no bar to a diagnosis of hysteria. A very celebrated case was that of Mary Chase, thus described by the apostle to the Indians, John Eliot, in 1632, "Mary Chase, the wife of William Chase, had a paralytic humor which fell into her backbone, so that she could not stir her body, but as she was lifted, and filled her with great torture and caused her back to go out of joint and bunch out from the beginning to the end, with which infirmity she lay four years and a half and a great part of the time, a sad spectacle of misery. But it pleased God to raise her again and she bore children after it."

This case laid before Oliver Wendell Holmes produced the following diagnosis (3): "I do not want to say anything against Mary Chase, but I suspect that getting nervous and tired and hysteric, she got into bed, which she found rather agreeable after too much housework, and perhaps too much going to meeting, liked it better and better, curled herself up into a bunch which caused her to look as if her back was really distorted, found she was cosseted and posseted and prayed over and made much of and so lay quiet until a false paralysis laid hold of her legs and held her there. If some one had 'hollered' fire, she would probably have jumped out of bed as many such paralytics have done under such circumstances. She probably could have moved at any time if any one could have made her believe she had the power of doing it. *Possumus quia posse videmur*. She had played possum so long that at last it became *non possum*."

It must be remembered that hysteric symptoms are *real* and not simulated, although they may be the product of an obsession or of autosuggestion. Both of these, moreover, may be followed, as Charcot pointed out fifty years ago, by secondary organic changes. In this respect hysteria does not differ from other central neuroses, noticeably the psychoses.

Hysteria keeps up with its reputation, as a universal mimic, in ophthalmology. Amblyopia in hysteria is one of the commonest deceptions of medical men. Hysterical amblyopia is a true blindness and none of the tests will detect a feigned element. Many "cures" of blindness by relics, hypnotism, Eddyism, osteopathy, etc., are cases of hysterical amblyopia diagnosed as blindness even by ophthalmologists. A famous case of this kind gave the boom to Mesmer. A girl diagnosed as amblyopic by the oculist Wenzel, and as a victim of hepatitis by the great clinician Störch, was cured of both by Mesmer. The eye paralyses, ptosis, etc., do not differ, except in their response at times to suggestion, from those arising in other states. The hemianesthesia of hysteria is sometimes attended by an unequal response of the pupils to light. This condition is usually not permanent, but may disappear with the disappearance of the hemianesthesia. In certain cases of congenital origin the inequality is permanent. It does not differ, however, from that of other allied congenital states.

Another hysteric condition is the paradoxical pupillary reflex, where dilatation occurs in light and contraction in darkness. Night blindness (nyctalopia) is far from rare among hysterics. The opposite condition also occurs.

The otic relations are similar to the ophthalmic. Nearly all are dependent on states of anesthesia of the otic nerves, sometimes complete, and sometimes limited to certain sounds or certain phases of sounds. The tone deafness plot of *Trilby* is modified from a case of the English neurologist, Elliotson. In Elliotson's case the tone deafness was permanently removed by hypnotic suggestion.

The rhinological relations are more complicated. There is an intimate nervous relation between the erectile tissue of the nose and the erectile tissue of the genitals. The comparatively enormous size of the olfactory nerve shows that it still preserves functions much more used in the lower animals. How much of the dysmenorrhea treated and benefited by Fliess and Ries, through cauterization of the turbinated region, was due to an hysteric condition, it is difficult to determine. Treatment of hysteria by ill smelling drugs has come down from the ancients. The various catarrhal states, or what is popularly known as "catarrh," are often of hysteric origin and disappear under mental impressions.

As the skin and the nervous system arise from the same germ layer, interrelations of hysteria and dermic states are quite numerous. The various erythemata occur from nervous causes in hysterics. The most striking of these is stigmatization or reproductions of the wounds of Christ, including a crown of thorns. These phenomena, while more frequent in Continental Europe, occur in the Southern States. Sometimes the ignorance of the woman causes the chest wound to appear on the wrong side. Similar states occur in other neuropaths, sometimes mimic bruises. In the case of Dunton *versus* Chicago City Railroad, a discoloration of the back arising from a mental impression was said to be a bruise due to an accident, although no accident had occurred. Closely related to stigmatization is blistering by suggestion. Nathaniel Hawthorne, who shares with Shakespeare the gift of preparing the soil for neuropathic symptoms which afterward appear, does this in Dimmesdale, the hero of *The Scarlet Letter*. Just before his appearance on the scaffold and the discovery of the scarlet letter on his breast, he is the victim of numerous wild obsessions of the type which Poe called the imp of the perverse.

Before Mr. Dimmesdale reached home his inner man gave him other evidences of a revolution in thought and feeling. In truth nothing short of a total change in dynasty and moral code was adequate to account for the impulses now communicated to the unfortunate and startled minister. At every step he was incited to do some strange, wild, wicked thing or other, with a sense that it would be at once involuntary and intentional in spite of himself, yet growing out of a profounder self than that which opposed the impulse. For instance, he met one of his own deacons. . . . Now during a conversation of some two or three moments . . . it was only by the most careful self control that the minister could refrain from uttering certain blasphemous suggestions that rose into his mind concerning the communion supper. He absolutely trembled and turned pale lest his tongue should wag itself in utterance of these horrible matters and plead his own consent for so doing without his having fairly given it. . . . Even with this terror in his heart he could hardly avoid laughing to imagine how the sanctified old patriarchal deacon would have been petrified by his minister's impiety. Hurrying along, the Reverend Mr. Dimmesdale encountered the oldest female member of his church; poor, widowed, lonely, and with a heart full of reminiscences

about her dead husband and children and dead friends as a burial ground is full of storied gravestones. . . . On this occasion, up to the moment of putting his lips to the old woman's ear, Mr. Dimmesdale, as the great enemy of souls would have it, could recall no text of scripture, nor ought else except a brief, pithy and, as it then appeared to him, unanswerable argument against the immortality of the human soul. The instillment thereof into her mind would probably have caused this aged sister to drop down dead at once, as by the effect of an intensely poisonous infusion. . . . After parting from the old church member, he met the youngest sister of them all. She was fair and pure as a lily that bloomed in paradise. As she drew nigh the arch-fiend whispered him to condense into small compass and drop into her tender bosom a germ of evil that would be sure to blossom darkly soon and bear black fruit betimes. . . . Before the minister had time to celebrate his victory over this last temptation, he was conscious of another impulse more ludicrous and almost as horrible. It was to stop short in the road and teach some very wicked words to a knot of little Puritan children who were playing there and had just begun to talk.

This stigmatization would be quite natural under the mental atmosphere which overshadowed the Salem witchcraft drama. Bromidrosis is far from rare in hysterics. As the distinction between a stench and a perfume is merely alteration of the position of the atoms in a molecule, it is not surprising to find an explanation of the odor of sanctity in the perfumes emitted by hysterics. The halo has a similar explanation. Féfé in two migrainous hysterics saw during a migraine crisis an orange colored halo around the head, stretching out from it for eight inches. The skin of the head was then orange colored. In one case the halo lasted several hours, in the other only a few minutes. This phenomenon would relegate the halo to the domain of phosphorescence in the lower animals.

The connection of hysteria and pelvic disease, aside from the ancient theory of womb causation, is that of any neurosis and any disease. Hysteria may coincide with pelvic disease, it may modify pelvic disease, and it may be modified by pelvic disease. The numerous mutilations performed for the cure of hysteria have no justification. Repeated analyses have shown, in hundreds of cases, there was no favorable effect and any temporary benefit which might be secured was due to enforced rest. The old view of hysteria, however, still leads to the lucrative operation.

Hysteria mimics every possible neurosis. Even epilepsy is frequently mimicked to an extent which deceives many. As hysteric convulsions are not infrequently followed by hysteric coma, the unconsciousness of the coma is often considered erroneously to be present during the convulsion. The so called "passional" stage of the hysteric convulsion sometimes occurs in epilepsy, but the patient is totally unconscious of what has happened. Hysteric hemiplegia, particularly in men, is often difficult to demarcate from ordinary hemiplegia. It occurs, however, at ages when in healthy men hemiplegias do not appear. Indeed, for this reason, many a case has been treated as specific by iodides, mercury, and salvarsan without effect for a prolonged period, then without warning it has suddenly disappeared. Hysteric aphasia is also far from infrequent, but is rarely accompanied by agraphia. Agraphia may be present alone without aphasia. At times, mirror writing may take the place of aphasia and agraphia. All neuralgias, including the

clavus hystericus, may occur. At times, angina pectoris is mimicked, and, although very rarely, sometimes proves fatal through spasm of the coronary arteries. As this is due to an influence on the medulla, it is not surprising to find other medullary neuroses like hydrophobia mimicked by hysteria. Many of the awards by legislatures and premiums for hydrophobia cures were given in cases of this kind. There is hardly a neurosis which hysteria does not mimic.

There are two great psychoses of hysterical origin, the acute confusional type which does not vary greatly from other acute confusional states, but which is more benefited by seclusion. Indeed, this acute hysterical psychosis is very wrongly treated for this reason. The chronic type is closely allied to paranoia, except that the stage of transformation does not occur and persecutory delusions rarely exist. In place of the hallucinations of the transformation period of paranoia, appear ecstatic states in which the subject sees and communicates with the Deity, with Christ, with the Virgin, or with various saints. In these ecstatic states, visual, auditory, and other hallucinations occur. Under the influence of these visions hysterics often become founders of sects or leaders of armies. The founder of the Shaker sect, a congenital hysteric, had a vision of Christ in which He satisfied all her desires, prohibited marital relations as the sin committed in Eden, and announced to her that God was a dual (hermaphroditic) being. This sect, at one time quite flourishing, is dying out. Originally to them, as to the Eddyists, disease was a sin to be cast out by criticism. To the outside world, however, they sold "healing herbs." The visions of Joan of Arc, who never menstruated (4), of Saint Teresa (who exhibited many hysteric phenomena besides), of Valentine Greatrakes, and numerous other founders of sects, were of this type. Religion in hysterics, as in lunatics, is often associated with sexual expressions; sometimes with the abnormal, as in the case of Mother Lee, and sometimes with various perversions. A psychic phase of hysteria creates a vampire to prey on relatives and physicians. This is nosophobia, which differs from hypochondria (a false interpretation of irregular innervation) in being a disease fear which creates symptoms. These survive often after the fear has gone.

The sexomental state of the hysteric is often frigidity combined with intense sexual preoccupation. This gives rise to dreams which remain in waking consciousness to become false accusations. In one suit for damages in Chicago a woman actually detailed (Benedict *versus* Barrett) on the witness stand the mental passage from the dream belief into a positive accusation. She woke up under the influence of a vivid dream of a criminal assault; later the dream occurred in the waking state, and she thought out corroborative evidence pointing to a particular person. People told her in conversation it was too vivid to be a dream. The judge at the close of her case directed the jury to render a verdict of not guilty.

Dreams of similar type occur in otherwise normal women in whom dietetic idiosyncrasies create genital erythema. Here the dreams are regarded as

nothing but dreams. The autosuggestiveness of hysteria leads to creation of evidence by the patient. In the case of the *People versus Sangster* in which I was consulted, a hysteric, from a dream in which she saw her husband embracing a wealthy aged woman, became convinced of his infidelity. She entered an alienation suit for damages against the woman. Meanwhile there had been considerable exploitation of poisoned candy sent by express. A broken pasteboard box containing candy was left at an express office, directed to her. Through the opening arsenic had been poured. According to the express record, the sender was her husband, but the clerk was uncertain whether a man or a woman had brought the box. The candy was said to have been eaten by herself and little daughter. They suffered from nothing but constipation, and no physician was called. The husband, on her testimony uncorroborated, was indicted for an attempt to kill. Despite protests of the defense, the case was repeatedly continued for the State to secure more evidence. The alienation suit resulted in a verdict of not guilty. The judge had great difficulty in preventing the jury from adding a rider to the effect that the plaintiff was insane. The State's attorney then nolle prossed the poison case.

A common hysteric phenomenon which should attract more attention than it does is suppression of urine. Sometimes this is merely regarded as retention and is allowed to pass off without examination. Frequently the uranalysis, after the kidneys resume action, reveals cylindroids, less frequently hyaline casts, and still less frequently granular. Sometimes there is slight albuminuria, slight glycosuria and acetoneuria, together at times with bile and biliary acids. It is, therefore, evident that at times there are marked strains on the liver and kidneys. This is the more to be remarked since pale urine, of the so called nervous type, is most frequent in hysteria. By itself, however, it should be remembered that this pale urine is an expression of the interference with the excretory functions of the kidney. Strains of this kind may give rise to nephritic and hepatic disorder. More common and obvious hepatic disorder occurs in some crises where both jaundice and a mimicry of gallstones appear. This has occurred in hysteria following railroad accidents. In one such case in Chicago, symptoms during a crisis caused the railroad surgeon in attendance to operate for gallstones, but none were found. One seemingly serious pulmonary state occurs and has been noted by great clinicians. Often, though not always, at the menstrual period, certain hysterics have a profuse hemorrhage from the lungs. This condition disappears without leaving any pulmonary change. Sometimes, as in a case reported by Watson, it disappears after marriage. It cannot always be explained by vicarious menstruation. Sometimes the globus hystericus is replaced by what has been well called a nervous cough. This is closely allied to laryngeal spasm such as occurs in so called false croup. The variations in temperature without intrinsic cause are much more extreme than the similar variations in children. Several well authenticated cases of temperature over 110° F., without

morbid coincidents or results, are on record. While the temperature has not fallen as low as in the insane, still a number of cases of 90° F. are on record (5). This is fully explained by instability of the thermic centre. Thermic regulation is accomplished by three sets of nerves—a thermoinhibitory, a thermostatic, and a thermoexcitatory. These, as Ott showed, are seated in the medulla and pons Varolii. Instability of the cardiac mechanism is behind the frequent cardiac irregularities in hysterics. Sometimes temporary murmurs may appear and disappear.

Autointoxication is a frequent concomitant of the internal organ instabilities of hysteria, and renders less manifest hysteric excitability.

The wasting, not only local from disease, but general, is sometimes extreme. Sometimes this is due to the same nervous condition which causes wasting in melancholia and allied states, and sometimes it is due to gastric hyperesthesia which produces hysterical vomiting (6). In most cases, however, of the last a small quantity of food is retained. The condition gives rise to the hysterical "fasting girls," desirous of the notoriety dear to the hysterical heart (7). In one celebrated case in Wales, the girl, watched on the insistence of her parents, starved to death.

Chlorosis is often associated with hysteria, but in many cases the chlorosis is secondary to the hysteria. Any trophic disturbance may occur in hysteria. At times, even the reaction of degeneration is present in atrophied muscles of old cases. Raynaud's disease and the allied states of vasomotor ataxia occur in hysteria. Gangrene from this cause, while extremely rare, sometimes appears.

MEDICOLEGAL ASPECTS OF HYSTERIA.

Wilkes (8) remarks that "if you see in the newspaper headings an extraordinary occurrence, you can be certain an hysteric is around the premises." There is no crime, however bizarre, which will not be mimicked by hysteria. Prominent among the hysterical crimes are the false accusations from which doctors and clergymen suffer frequently, lawyers occasionally, while the layman does not escape. These may vary from criminal assault accusations with or without sadism to accusations of obscene scurrilous letter writing, to burglary and arson (9). In one French case an innocent man was sent to the penal colony—Cayenne—where he served several years before his innocence was recognized. In another case a French girl alleged that she had been assaulted by a man who forced a paving stone into her vagina. The man's innocence was proved, whereupon the father, who had prosecuted him venomously, committed suicide.

In the case of the *people versus Arnold*, tried at Freeport, Ill., 1911, a girl accused a physician of criminal assault. The jury disagreed. At the second trial the girl broke down on cross examination, and the doctor was acquitted. Six months later, the girl began to receive pseudonymous, scurrilous, obscene letters. The handwriting experts of the post office declared that these were written by the doctor. The case was tried before Judge Landis, the girl broke down, and admitted having written the letters herself. The doctor was acquitted. A year

later a wealthy farmer, evidently attracted by her notoriety, married her.

In a Chicago case before Judge Sabath against Doctor Volini, a woman accused him of criminal assault. Her husband, who was present at the time alleged, testified in the doctor's favor; whereupon *the woman admitted that she must have had a "hysterical delusion."* The scurrilous letter writing sometimes occurs in epidemics. For the last ten years, on the North Side of Chicago, there have been recurrent showers of obscene and scurrilous letters. In most instances the source of these letters was not traced. A very marked hysteric, however, named Viola Larson, was detected writing a pseudonymous scurrilous letter to a girl friend, calling up the friend by 'phone to discover if the letter had been received. This girl displayed in other particulars the hysterical desire for a new sensation by stealing a physician's buggy to enjoy the titillation of the chase. This desire is often behind thefts in department stores. The condition is not kleptomania because the subject recognizes the nature of the act, enjoys defying the law, and has full control of himself or herself. This criminal manifestation is rather more frequent among male hysterics than other hysterical crimes. The so called voluptuous kleptomania of Stekel (10) and other Freudians has been found frequently in male hysterics. It is not a kleptomania in any sense of the term, but an erotic symbolism to secure enjoyment. One very startling case of pyromania was that of Mrs. E. A. C., a leading church and society woman on the Chicago south side, a member of the Chicago Woman's Club, who was in financial straits. Her house was found on fire in nine places, and she was tied up with a rope. Her hands were not tied. She charged that two burglars entered her house, stole jewelry valued at \$1,800 and \$100 in cash, tied her, and then set fire to the house. The peculiar burglar performance at once attracted suspicion in spite of her club and social affiliations. The fire and police authorities on investigation determined that she was responsible. She admitted the performance and said it was done in an irresistible impulse. The fire attorneys lean from actual experience to the opinion that pyromania (an irresistible impulse) is the cause of many fires. In this case hysterical explosions were accepted as corroborating this theory and prosecution was dropped. However, there was both sufficient motive and sufficient self control to justify legal action. Certainly, even on the pyromania theory, she would be civilly responsible for fire damages. Several cases like this occurring in Germany have been explained by Stekel on the sex traumatism theory of hysteria. Not one of these is true pyromania. There is consciousness of the act with enjoyment of its consequences and power of self control which is not present in the irresistible impulse. The irresistible impulse is the test of responsibility in the common law States, like Illinois and Wisconsin, and under the Roman law in all Continental Europe.

There is a destructiveness in hysteria which shows itself in the smashing of crockery and furniture, the tearing of dresses, and the breaking of window glass and in the often seemingly motiveless

poisoning of children and others by hysterics. Some years ago a sixteen year old servant girl in Englewood, Chicago, poisoned a whole family with arsenic. There was no apparent motive, not even spite. The girl had hysterical manifestations preceding and subsequent to menstruation. She fully recognized the nature of the act and its consequences, and narrated with apparent gusto to the lawyer and his physician the sufferings of her victims. Such moral anesthesia, quite characteristic of hysteria, is frequently accompanied with religious enthusiasm and charitable work. Three of her victims died. No defense of insanity was entered. The jury, as often occurs in such cases, taking her youth into account, and the bizarre absence of motive, gave her twenty years in the case in which she was tried. The others were dropped. The poisoner, not mutilating the body, receives much more sympathy than one who commits homicide in the heat of passion or for self defense, and then seeks concealment by destroying his victim's identity. The hysterical poisoner, like the hysterical criminal, generally wins popular sympathy, while the insane, whose crimes have little of the romantic about them, are hounded to death or imprisoned by the suspicion of primitive man. The great private poisoners, like the Marquise de Brinvilliers, displayed all the mental and ethical characteristics of hysterics. The Marquise de Brinvilliers presented that Madonna criminal type which is due to infantilism. She owed the sympathy of the Paris mob to the ostentatious piety she displayed. Her victims, who included experimental poisoning of patients in hospitals, whom she "nursed" tenderly, three members of her own family from whom she had expectations, several rivals, and several wealthy men to whom she gave dinners after securing jewels and other property from them. Under the old law which the Normans injected into the English common law, she was tried for petit treason (that is, the murder of a father, husband, or master); given the question extraordinary (which consisted of pouring water into the person through a funnel until he admitted what was wanted), and finally sentenced to be burnt. This was carried out only by the aid of troops. After the execution, the executioner sold her ashes at high prices as those of a saint. This popular sympathy with a hysteric is a great danger to the physician. Were the principles of the common law carried out by the police, State attorney, and grand jury, there would be no unjust convictions, since the old right of the presumption of innocence would be observed. The law requires that everyone shall be presumed to be innocent until proved guilty beyond a reasonable doubt, and that any circumstance which can be reasonably explained on the ground of innocence must be so explained. Fortunately, in Chicago the developments of the Gingles case have led to a wise discretion in alleged rape cases by police and municipal judges.

One question of much importance to the physician is the civil responsibility of the hysteric. Like that of the insane, her property is liable for any damages resulting from her acts. In law, civil penalties often avail, where criminal penalties fail.

(To be concluded.)

Our Prize Discussions.

Questions for discussion in this department are announced at frequent intervals. So far as they have been decided upon, the further questions are as follows:

CLVIII.—How do you treat heartburn? (Closed.)

CLIX.—What is the proper role of the dentist in the therapeutics of internal diseases? (Answers due not later than June 15th.)

CLX.—How do you treat flatulence? (Answers due not later than July 15th.)

CLXI.—How do you treat syncope? (Answers due not later than August 15th.)

Whoever answers one of these questions in the manner most satisfactory to the editors will receive a prize of \$25. No importance whatever will be attached to literary style, but the award will be based solely on the value of the substance of the answer. It is requested (but not REQUIRED) that the answers be short, if practicable no answer to contain more than six hundred words; and our friends are urged to write on one side of the paper only.

All persons will be entitled to compete for the prize whether subscribers or not. This prize will not be awarded to any one person more than once within one year. Every answer must be accompanied by the writer's full name and address, both of which we must be at liberty to publish. All papers contributed become the property of the JOURNAL. OUR READERS ARE ASKED TO SUGGEST TOPICS FOR DISCUSSION.

The Prize of \$25 for the best paper submitted in answer to Question CLVII was awarded to Dr. Louis Hubert, of New York, whose article appeared on page 1173.

PRIZE QUESTION CLVII.

THE TREATMENT OF DIARRHEA.

(Continued from page 1176.)

Dr. Mason P. Young, of Philadelphia, writes:

Diarrhea is a term loosely applied to all forms of intestinal disturbance accompanied by liquid stools. It is most often a syndrome rather than a definite clinical entity and is accompanied by pain, fever, and various degrees of prostration. It is of first importance to find the cause. I shall speak of the treatment, first, as a clinical entity; second, with reference to etiology.

1. The intestinal tract should be thoroughly evacuated of toxic and irritant material. Diarrhea is Nature's effort at getting rid of this and should be encouraged as long as the stools show evidence of mucus, undigested food, etc. The best purgatives are castor oil, calomel, and Epsom salts. Castor oil should be given in ounce doses for adults, with twenty grains sodium bicarbonate (to make it more active). Calomel should be given in doses of half a grain every half hour for four doses. The action is mostly irritant. Epsom salt has the advantage of being the least irritant of all purges. It is most active when given on an empty stomach in warm water. It should not be used in protracted diarrhea on account of its dehydrating action.

2. The diet should be restricted. For an adult, 1,800 calories should be the food value arrived at. Amylaceous foods, i. e., milk and gruels, are generally agreeable.

A careful study of the stools, especially in infants, usually reveals that element of food which is at fault. This should be greatly reduced or temporarily eliminated. An abundance of cool, not cold water should be given.

3. As far as possible, we should check the growth

of bacteria that are sometimes causative of the condition. In past years antiseptics have been overemphasized. Aside from a few vermicides and amebicides (emetine), this action is largely theoretical. It is hard to see how a few grains of some antiseptic can inhibit the growth of bacteria, since any amount strong enough to be bactericidal causes injury to the mucous membrane. The best antiseptics are the salicylates, ten grains three times a day, and betanaphthol, five grains thrice daily. Hexamethylenamine is useless as an intestinal antiseptic; vaccines are also useless.

4. The diarrhea should be checked as soon as toxic material is eliminated. The best agent is bismuth subgallate, two drams every second hour until effective. The subnitrate should be avoided on account of possible nitrite action. Bismuth is sedative rather than astringent. Like the antiseptics, the various astringents are not of much use. It is unlikely that a few grains of astringent can have much action on thirty-three feet of intestine. To check excessive peristalsis, opium and volatile oils are best. The most reliable preparation combining the two is paregoric. We have found the following prescription very satisfactory:

R	Tincturæ opii,	℥v;
	Tincturæ lavandule comp.,	℥xv;
	Tincturæ kramerie,	3i;
	Pulveris cretæ comp.,	3i;
	Aquæ cinnamomi, q. s. ad.....	3ss.

M. One dose in water every third hour.

The serous diarrheas should be checked without preliminary purging. Opium acts best because of the stimulating action on the splanchnics.

During treatment the patient should be in bed and heat applied to the abdomen. The physicians of India have found woolen cloths worn over the abdomen very useful, even when patients cannot go to bed.

2. *Etiology.* The diarrhea of cardiorenal conditions should be treated by rest in bed, diaphoretics, hot packs, diuretics, and purges. Before giving digitalis, massa hydrargyri should be given, grains ten, to help absorption. We should remember that strophanthus often causes diarrhea.

In infectious diseases the diarrhea is best treated indirectly by combating toxemia.

Sometimes diarrhea is due to perverted intestinal secretion. Calomel, one grain, and podophyllin, grain one eighth, are clinically the best hepatic stimulants. The best intestinal stimulant is freshly prepared nitrohydrochloric acid, three minims, in one half glass of water three times a day. In prolonged trouble of this kind predigested foods are helpful.

Diarrhea of extreme cachexia, as in advanced carcinoma, Addison's disease, etc., should be checked if it proves too exhausting. Opiates are satisfactory and justifiable.

Surgical intervention should be resorted to in the diarrhea of chronic appendicitis and chronic intestinal obstruction.

Dr. Robert A. Deane, of Victoria, Va., remarks:

Preventive measures should be instituted. Examine the feeding bottles of the infants, and im-

press upon their guardians the importance of cleanliness in regard to these bottles, their utensils, nipples, and the like. We may find it necessary to have milk boiled. We will look into the physical condition of the nursing mother. Generally speaking, the chief indications for active treatment are, 1, to clean the bowel of the cause of the irritation; 2, absolute rest for the bowel, thereby permitting chance for recovery; and, 3, alleviation of the collapse or depression. There are not many better ways to clear the bowel than by a dose of mild mercurous chloride, according to age, followed in from one to two hours by a dose of castor oil. This is especially indicated in cases where the small intestine is involved. If the trouble is in the large bowel, or where there is much vomiting, we may employ a high rectal enema of hot or warm water, injecting from one to two pints, children in proportion. To keep the bowel at rest, it is best that feeding be suspended for at least twenty-four hours. If food of any sort is allowed, it should be small quantities of albumin or rice water, and best given cold. The patient is gradually, with caution, allowed to eat, taking such articles as have the least residue. Astringents and antiseptics are for the most part unnecessary. In severe cases, and those not easily aborted, the bismuth salts may be given. Rarely, opium may be indicated. A mixture of bismuth subcarbonate, syrup of ginger, and chalk mixture may be prescribed, according to the age of the patient. Deodorized tincture of opium may be added to this mixture, if indicated.

In infantile diarrheas, usually with green stools and due to milk fermentation, I have found, after correcting feeding, a mixture of equal parts of castor oil and aromatic syrup of rhubarb, given every two or three hours, for six doses, very beneficial. Lime water often acts nicely in some cases.

Collapse may be treated by warmth externally, especially to the abdomen, stimulants, and injections of normal salt solution under the skin, or per rectum, by a slow or drop method. Minute quantities of brandy are sometimes beneficial.

In chronic diarrheas, such causes as intestinal obstruction, improper foods, suppression of gastric, hepatic, or pancreatic functions, and nervous disturbances, should be treated. The stools should be thoroughly examined. The rectum should always be examined for ulcerations, benign or malignant growths, as well as the anus for fissures, etc., etc., and the proper treatment instituted. Alternating constipation and diarrhea will cause us to suspect a tuberculous condition. Children with diarrhea, distention of abdomen, enlarged glands, wasting and weakness, should be suspected of tuberculous enteritis, and the bacilli may be found on examining the stools.

For these chronic conditions we order rest in bed and restricted diet. Milk, soup, beef juice, etc., etc., are allowed. Gradually, we may give other foods of little bulk, as carbohydrates and the like. The diet is given close attention and study, and, if necessary, modified to suit the case.

In few instances, we may find medication of advantage, such as purgatives, bismuth salts, salol, etc., these being aside from the underlying cause, which is given due consideration in every case.

Dr. R. Orlando Mundin, of Richmond, Va., writes:

The treatment is eliminative and expectant, as it is caused principally by irritants, some of which are powerful and quickly acting cardiac, nervous, and systemic depressants.

High enemas of soap suds, Epsom salts, or a normal salt solution must be given to cleanse the colon. Beside cleansing, the salt solution has its nutritive value.

The patient being quiet (morphine having been given hypodermically at the very first to relieve the pain), you must keep up the body heat, yet allow plenty of fresh air.

Cracked ice or iced brandy will allay the thirst. Then

R Cretæ preparatæ,āā 5ij;
Tincturæ krameriæ, {āā 5ij;
Tincturæ opii deodoratæ,5j;
Acaciæ,5ss;
Aquæ cinnamomi, q. s. ad.3iij.
M. Sig.: Teaspoonful in water every three hours.

An intestinal antiseptic is needed and salol and bismuth subnitrate fill the bill. If the diarrhea persists it may be necessary to irrigate the colon with argyrol solution, ten to forty per cent. After the inflammatory stage has passed and constipation exists, use

R Fluidextracti cascara sagrada,3j;
Tincturæ nucis vomicæ, {āā 3ss;
Glycerini,āā 3ss;
Aquæ chloroformi, q. s. ad.3iij.
M. Sig.: One or two teaspoonfuls in water three times daily after eating.

Cholera infantum deserves special mention, for in this we have a powerful depressant which acts quickly. In the acute cases we must support the patient. For the fever and dry skin, a pack to the trunk kept wet with water (80° to 90° F.) will control the pyrexia. Keep the feet warm. With subnormal temperature and poor circulation, five minutes in a hot bath (105° to 108° F.) is indicated. Repeat in half an hour. Stimulate hypodermically (brandy, twenty to thirty drops, with tincture of strophanthus, half to two minims). For the repeated vomiting and to prevent too great a loss of the body fluids because of the profuse watery stools, morphine, grain 1/50 to 1/20, and atropine, grain 1/300 to 1/200 hypodermically, *pro re nata*.

When the vomiting and the stools diminish and the stomach is retentive, give calomel, grain one sixth, every half hour until one grain is given, and follow with a solution of sodium sulphate in the simple elixir, thirty drops of each in water every half hour until four doses are given.

At this time colonic irrigation should be used every twelve hours until improvement, and then once daily as long as fecal matter or mucus is returned.

The cereal waters (alternately) should be substituted for the milk diet.

The number of stools being reduced to four or five a day, the opium preparations are discontinued.

Bismuth subnitrate in ten grain doses every two hours mixed with aromatic syrup of rhubarb should be given. The pure bismuth being converted into the sulphide produces black stools and thus exerts a favorable influence on the intestinal contents, but when it fails to do so, as it sometimes will, it is best to administer one grain of precipitated sulphur at

the same time. As the milk diet is resumed, the bismuth should be decreased.

The diet of the convalescent is an all important matter and each case must have its own special dietary.

Therapeutic Notes.

Use of Gelsemium in the Treatment of Neuralgic Conditions.—L. Bériel, in *Lyon médical* for April 26, 1914, reports the results of an extensive and critical study of the effects of this drug in neuralgic states. The number of cases treated could not be definitely given, but the extent of the author's experience is shown by the fact that nearly two litres of fluidextract of gelsemium (U. S. P. formula) were in all administered to his patients. The drug in some cases proved useless, but in others there was a manifest anodyne effect and at times complete relief from pain, even in long standing cases previously treated without success by operative measures. Benefit was noted more frequently in facial neuralgia than in sciatica, and especially in cases with marked local vasomotor phenomena at the time of the paroxysms, or with facial spasm; but no definite rule can be stated. In symptomatic neuralgias, e. g., in a case in which the pain was due to pressure by a postmaxillary tumor, considerable relief was afforded in some instances. In neuralgic states the author now always tries a course of gelsemium treatment before employing alcohol injections.

The doses used must be larger than those generally recommended. The initial daily amount should be about fifteen drops, and this should be increased daily by two to five drops until the dose required for a full effect is reached, viz., thirty to forty drops. These amounts should be divided into four or five doses each day, to be taken in a little water. When the last mentioned doses are attained, a marked anodyne effect is noted in the cases that react properly to the drug. If it is not, benefit will only exceptionally be obtained by increasing the dose further. In the favorable cases the thirty to forty drop dose should be continued for some days—a week, in the average—then reduced more or less rapidly to the sufficient dose, which is generally about fifteen drops. The latter is continued for two to four weeks, after which complete discontinuance is attempted. In one case the fifteen drop dose had to be continued for several months to prevent a return of pain.

Although the fluidextract used was obtained from two different sources, no marked untoward results were noted in any case. Among the patients were two with albuminuria. One elderly woman with cardiac weakness took thirty-five to forty-five drops daily for several days without difficulty. The maximum dose used in any case was sixty drops. In rare instances slight manifestations of intolerance were noted, chiefly mild and temporary clouding of vision, and either slowing or acceleration of the pulse rate. Some patients complained of constipation and a few of oliguria or a feeling of weakness, but these symptoms were in no instance sufficiently

marked to necessitate interruption of treatment. Good results were obtained both in hospital and private practice.

Nuclein Treatment in Paralysis agitans.—I. N. Buia, in *Quinzaine thérapeutique* for May 25, 1914, is stated to have employed injections of sodium nucleinate in the treatment of five cases of Parkinson's disease, starting from the well known facts that febrile disorders diminish or remove the tremor in this affection and that sodium nucleinate itself gives rise to fever. The drug was first injected hypodermically on alternate days in doses ascending from four fifths of a grain (0.05 gram) to six grains (0.4 gram) in a ten per cent. solution. Subjective improvement followed, but the rise in temperature was at most one degree C., showing that the maximum effect of the drug was not being secured. The intravenous route was then adopted, the same solution and ascending doses being employed. The immediate effects consisted in a slight rise of temperature within fifteen minutes, followed by a pronounced chill lasting fifteen to thirty-five minutes, with temporary increase in the tremor. After this the skin becomes red and hot, thirst is experienced, tremor in the hands and feet almost entirely disappears, and muscular rigidity seems diminished. But little sweating takes place. A distinct diuresis occurs in the succeeding forty-eight to sixty hours. The effects of such treatment include a manifest euphoria and relief from insomnia. These effects persist for several days, during which tremor is further diminished and motor power augmented. Two patients bedridden for two years were enabled to walk fifty or sixty steps and even to ascend and descend stairs. Some degree of formication, especially at the knees and thighs, was noticed among the effects of the injections, whether hypodermic or intravenous. With doses of five and a half to six grains (0.35 to 0.4 gram), manifestations of intolerance such as nausea, vomiting, dizziness, headache, and tachycardia compelled the author to cease increasing the amount given. In dementia præcox, however, he was able to inject fourteen grains (0.9 gram) without untoward effect. The treatment recommended in paralysis agitans, after five months' experience, is as follows: Intravenous injections of a five per cent. solution of sodium nucleinate in normal saline solution should be given, beginning with one sixth grain (0.01 gram), then giving one third and four fifths of a grain (0.02 and 0.05 gram) up to one and a half grain (0.1 gram) every three days. Five injections should thus be given in series, to be followed by an interval of five to ten days, after which the initial smallest dose should again be started with. When such doses no longer produce the desired febrile reaction, the amount may be increased up to five and a half to six grains (0.35 to 0.4 gram). The solution used must always be freshly prepared. On the whole, the author deems that with nuclein one can procure marked symptomatic improvement in Parkinson's disease far more easily than with any other treatment so far recommended. Beside the injections, a regimen should be followed, for in paralysis agitans a drug cannot supersede natural agents.

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DISPENSARY STANDARDS.

A little over two years ago, a new organization was called into existence to improve the dispensary work of this city. The organization assumed the name of the Associated Outpatient Clinics of the City of New York and applied itself industriously to the consideration of the large number of problems involved in dispensary management and administration. Very early in the career of this organization it became evident that there was an utter lack of standards by which the efficiency of dispensary work could be gauged objectively. Recognizing this lack, the organization took it upon itself to formulate such tentative standards, and called into being a number of sections, corresponding to the divisions of clinical work. The sections are composed of the chiefs of clinics in the institutions holding membership in the association. After great deliberation and careful consideration a body of standards has been evolved. They refer to general medicine, surgery, pediatrics, syphilis, genitourinary and skin diseases, and gynecology. They form the only available standards with reference to the equipment and organization of clinics, and constitute a valuable accession to the science of hospital administration.

There can be no doubt, with the growth of appreciation on the part of the community of the

possibilities of the dispensaries in the general health movement, that the standards so carefully prepared will be generally adopted, and the level of dispensary work will be thereby considerably raised. This standardization of the clinical equipment is, however, but one phase of the problem. There are many others which need careful study and consideration. The relation of the physician to the outpatient clinic, and the relation of the outpatient clinic to the hospital and to the public, are matters which require an early and satisfactory solution.

STERILIZATION OF THE SKIN WITH
IODINE.

Dating from the introduction of antiseptic surgery by Lister and running through the entire development of modern aseptic methods, there has been one essential problem which has perhaps not yet been solved—the ideal method of sterilizing the skin over the field of operation. The most elaborate rituals of preparation have been advocated, including methods which required twelve hours or more for their completion and worked considerable hardship upon the patient. It was long ago shown by Dennis that stitch abscesses were frequent after the most elaborate and violent methods of preparation and that they could be almost wholly prevented if mild and simple measures were adopted which did not produce cutaneous irritation. Practically all of the usual methods are fraught with decided objections. In 1909, Lionel Stretton first advocated the use of the tincture of iodine without previous treatment of the skin. This method was adopted by many surgeons all over the world and their reports as to its efficacy have been quite divergent. Some have found it entirely satisfactory, others have condemned it unreservedly.

Now Stretton comes forth in support of his method in an article in the *British Medical Journal* for May 22nd. He has used tincture of iodine alone in about 3,000 cases up to the present time, and among these has not had a single stitch abscess. He calls attention to the fact that the tincture which he uses is the official one of the B. P., which contains two and a half per cent. each of iodine and potassium iodide dissolved in alcohol. This preparation has never in his experience produced dermatitis and it seems that most of those who have encountered this condition have employed tinctures containing ten per cent. of iodine.

The method which Stretton follows may be briefly outlined. The skin is not to be wetted for at least twelve hours before the operation, as moisture causes the cells to swell and to lock bacteria in the recesses of the skin. It also prevents the efficient

penetration of the iodine. Usually the hair, if present, is not removed, but if this is desirable it can be clipped off after the patient is anesthetized, or a dry shave can be given some time before. Half an hour before the time of operation a wide area of skin is painted with the tincture, which is best applied with mild rubbing by means of a sterile gauze sponge; the area is at once covered with a sterile towel. Upon completion of the operation the line of incision and the skin for about an inch to either side are again painted with the iodine and a dry sterile gauze dressing is applied. In septic cases the wound may be packed with gauze soaked with the tincture. The use of iodine can also be extended to the treatment of accidental wounds with the most gratifying results. One of the great advantages of the method is the fact that the brown stain shows the surgeon the exact limits of the sterilized region. If necessary, the operator's hands can also be perfectly sterilized by painting with the iodine, which can subsequently be removed by washing in a three per cent. solution of phenol.

Fear has been entertained regarding the effects of letting the intestines come into contact with the painted abdominal skin, but this is unwarranted, as Stretton's experience shows that damage never results from such contact.

Stretton is not afraid to state that bacteriological evidence does not lend much support to the use of tincture of iodine as a means of sterilization, but he contends—and with justice—that the clinical evidence in its favor is overwhelming. It must be said that the method appeals to us strongly because of its simplicity and efficiency coupled with its apparent freedom from disadvantages. It should be noted, however, that these virtues seem to rest upon the use of the two and a half per cent. solution with potassium iodide and its application to a thoroughly dry skin.

THE HOUSE FLY AND DIARRHEAL DISEASE.

The investigation begun in 1913 by the Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor, into flies and filth as causes of infantile diarrhea, was continued throughout the 1914 season, in cooperation with the Bureau of Child Hygiene of the Department of Health of the City of New York. A considerably larger number of infants were under observation, nearly 1,000 in all; three different sections of Manhattan borough were selected, in which the homes studied were visited every five days, a careful record being kept of the character of screening of the infant and the infant's food, the degree of cleanliness in the home, the number of flies, tem-

perature, feeding conditions, etc. Mortality and morbidity conditions were known at the start and carefully recorded throughout the experiment. The distribution of fly netting, fly swatters, fly paper, and educational literature, with personal instruction, constituted, in part, the methods of attack in the "protected" homes. The classification of results was based on a division of the infants into "clean" and "dirty," "protected" and "nonprotected," depending on the records of the nurses and supervisors and the observations of the superintendent of the bureau, who, with his assistants, had the last summer's work in charge.

The conclusions seem to be as accurate and trustworthy as is possible from two years' intensive work, in a problem fraught with difficult human factors, many almost uncontrollable variables, and consequently a large factor of error. The main conclusions are: 1. The fly factor, based on the percentage of infants attacked and found by dividing the incidence of diarrheal disease in the nonprotected group by that in the protected group—1.9—means that very nearly twice as many infants were attacked by diarrhea where flies abounded than was the case where flies were few. 2. The dirt factor—1.8—means that nearly twice as many cases occur in filthy homes as in the clean homes. 3. The combined fly and dirt factor—2.4—means that nearly two and one half times as many cases occurred in dirty and fly ridden homes as in clean "protected" homes.

Whatever may be the ultimate value of these conclusions, the unique methods employed in this experiment offer a basis for future research. Aside from the contribution to scientific knowledge of the importance of the house fly in epidemiology, the conclusions undoubtedly support popular feeling regarding the insect and offer trustworthy data upon which to base a propaganda against flies and dirt.

Flies and dirt together, in tenement homes, are a menacing combination against the welfare of our infant population; the results of this house fly study are, therefore, of special significance to infant welfare agencies. The care which the community takes to insure the welfare of its potential citizens should be considered an accurate index of its social and intellectual rank.

PARASITES AND PERFUMES.

Methods of exterminating lice continue to occupy space in the European medical journals, owing to the now obvious connection of the parasites with typhus fever. In *Presse médicale* for May 20, 1915, C. G. Delta, chief of the hygienic laboratory at Alexandria, Egypt, writes of an experience he had about a year ago with a beginning epidemic.

He had noticed the extreme repugnance with which lice greeted strong perfumes and the fact that they succumbed eventually if their escape from the odor was prevented. Noticing also that disinfection of clothing and careful bathing were only temporary expedients in ridding the soldiers' bodies with a strong and cheap eau de cologne for sale in Alexandria. The effects were all that could be desired, as even the nits were destroyed, probably, as Delta says, by dehydration due to the alcohol. This incident recalls the reputation enjoyed by the nobility of former days, up to the time of the French Revolution at all events, of being continually saturated with powerful scent; it was a useful fashion and should have confined the dangers of phthiriasis to the lower classes, which perhaps it did, save in exceptional circumstances.

SAVING THE BABIES.

Probably one of the greatest of modern national movements is that of conservation, whether it be of animate or inanimate objects. We hear of it continually; and there is one line of conservation that at this time of the year particularly receives emphasis from all sides. It is the saving of the lives of babies, and as a corollary, their healthful bringing up. It may appear to many that most of those babies who die of summer ailments are better off than those who survive. Perhaps they are; but the sentiment of society is that as long as they are here, all means must be employed to keep them alive. The saving of the infant's life, however, is merely an episode; the larger question is whether or not there should have been a child in that particular environment.

It is a moot point, whether quantity or quality is the desideratum; the population of the country increases greatly in numbers, but there is always a doubt as to whether that necessarily means an increase in the nation's assets. Inasmuch as many of those whose lives are saved are destined never to develop to the normal, it might seem better that such babies had not been born. At present the effects of inheritance are not understood clearly, consequently the eugenist has a difficult problem in attempting to prove the essentially firm basis on which the doctrine rests. Yet a good deal concerning inheritance is known and even more is understood when the effect of environment is brought into the discussion. Given a physical condition that is below par as a result of both inheritance and ignorance, place it in surroundings that cannot but tend toward the vicious, and the sequence of events in that life will follow a very distinct order.

Yet the birth of a child whose life is to be saved

is an accident of little importance when compared with the obligations resting upon the community to look after the prenatal as well as the postnatal conditions. One or the other or both must be improved. The theory of restricted births is by no means popular. Whenever it is mentioned, one would imagine, from the replies received, that the Constitution is so interpreted that everyone, under certain social restrictions, must be allowed to propagate and bring forth *ad libitum* irrespective of the value of the product. If that is the case, there should be such improvements made in the environment as to insure the highest possible efficiency in the human machine.

Whatever the outcome may be, society must be prepared to face the questions of decreasing the number of births, increasing the quality, and improving the physical surroundings. Otherwise much of the energy expended in infant conservation will be worse than wasted.

TO STUDY THE PHENOMENA OF OLD AGE.

Geriatrics, or the special study of the diseases of old age, which has already at least two excellent textbooks, one in French, the other in English, to its credit, has now led to the organization in New York of a professional association for the exclusive consideration of senile conditions. The *NEW YORK MEDICAL JOURNAL* has a sort of sponsor's interest in the New York Geriatric Society; it was a former editor who coined the word, geriatrics, for the specialty, as despite the venerable nature of its subjects, the science itself is young. Dr. I. L. Nascher, who was the first American physician to give his time exclusively to this subject, is the secretary of the society, and, as will be seen by reference to our news columns, he will welcome papers, reprints, and reports dealing with the aged, their diseases, and their care.

SO-CALLED TRUE HERMAPHRODITISM.

At a meeting of the Section in Obstetrics and Gynecology of the Royal Society of Medicine on May 6th, according to the *Lancet* for May 22, 1915, Dr. Blair Bell read a paper on So Called True Hermaphroditism. It was pointed out that the so called "true hermaphroditism" in man should be termed "glandular partial hermaphroditism." All the really authentic cases (probably four in number, apart from Doctor Bell's case) have had ovotestes. Many of the recorded cases of true hermaphroditism had been disproved, and this specially applied to those cases in which a separate ovary and testis had been recorded. Further, all the cases with ovotestes had shown predominating feminine characteristics. Doctor Bell's case was that of a patient who had presented all the characteristics of femininity, with regular menstruation, until eighteen months after puberty, when menstruation ceased and masculine

characteristics developed; these included a bass voice and an excessive growth of hair on the body with masculine distribution. At first a diagnosis of suprarenal hyperplasia was made, and the patient was treated with ovarian and thyroid extracts. Later laparotomy was performed, and sections were removed from both gonads. The left had the macroscopic appearance of a testis. The pathologist, however, reported that the left gonad was the seat of columnar carcinoma. Consequently the abdomen was reopened, and the gonads, tubes, and fundus uteri were removed. On examining the sections Doctor Bell came to the conclusion that the left gonad was an ovotestis and not the seat of a malignant growth. The patient was therefore a glandular partial hermaphrodite.

THE REMOTE DANGERS OF TELEGONY.

Some time ago, this JOURNAL published a communication on the possibility of the characteristics of a woman's first husband being transmitted to offspring from subsequent marriages. The possibility of telephony, as it is called, is not generally recognized, but some members of the Académie de médecine evidently thought it worthy of investigation on account of the stories of numerous babies of German military paternity shortly to be expected in northeastern France. Barrier, general inspector of French veterinary schools, assured a meeting of the academy on May 5th, according to *Paris médical* for May 22, 1915, that telephony did not exist, in spite of an isolated statement attributed to Darwin, and that, therefore, there was nothing to fear concerning the children that might be born to the Frenchwomen involved, in future, more peaceful days.

CATS AND DIPHTHERIA.

An outbreak of diphtheria at the Stockwell (Eng.) Orphanage, in which, out of sixty-eight cases, one proved fatal, has been traced to infected pet cats, according to the *Lancet* for May 29, 1915. The cases were more numerous among the boys than the girls, which was accounted for by the fact that the boys, singularly enough, took more interest in the cats.

News Items.

Changes of Address.—Dr. Alfred Meyer, to 70 East 119th Street, New York.

The Lister Medical Club, of Portland, Me., held its annual meeting and banquet on the evening of May 27th. Dr. Addison R. Thayer was elected president and Dr. Stanley Warren, secretary and treasurer.

The New York Geriatric Society was organized on June 2d with the following officers: President, Dr. Robert Abrahams; vice-president, Dr. Edward P. Swift; secretary, Dr. I. L. Nascher, 103 West Eighty-eighth Street. This is the first society ever organized for the scientific study of senile conditions; the causes of aging, the diseases of advanced life, and the home and institutional care of the aged. Meetings will be held monthly, time and place to be announced in the medical journals. The New York Geriatric Society will appreciate the receipt of papers, reprints, and reports dealing with the aged, their diseases, and their care.

Meeting of the German Medical Society of New York.—At the meeting, June 7th, at the Academy of Medicine, Dr. Wilhelm Konrad Röntgen, of Berlin, and Dr. Albert Neisser, of Breslau, were elected honorary members of this society. Doctor Onuf delivered an address on the modern treatment of psychopathological cases. Doctor Hoch, Doctor Gregory, and others discussed the paper.

Commencement at Boston University.—At the forty-sixth annual commencement exercises of Boston University, held on Wednesday, June 2d, degrees were awarded to 307 men and women, the largest graduating class in the history of the institution. In the medical school the degree of doctor of medicine was conferred upon twenty-one candidates, the degree of bachelor of science upon two, and the degree of bachelor of surgery upon three.

The Guild Hospital Opened.—The Seaside Hospital of St. John's Guild, at New Dorp, Staten Island, which takes a leading part in caring for sick babies in New York in summer, was opened for the season on June 1st. Tickets have been issued to the department of health, hospitals, dispensaries, day nurseries, and similar institutions, where they may be obtained by those who need them. The guild also provides free transportation.

Bronx County Medical Society.—A regular meeting of this society will be held in Ebling's Casino, 156th Street and St. Ann's Avenue, the Bronx, on Wednesday evening, June 16th, under the presidency of Dr. William G. Eynon. Dr. Godfrey R. Pisek will read a paper on Some Pitfalls in Pediatrics. Dr. I. H. Goldberger will read a paper on Artificial Feeding in Breast Fed Children During the First Year, which will be discussed by Dr. Rowland G. Freeman. At the executive session officers to serve for the ensuing year will be elected.

Mortality Statistics of New York.—The noteworthy feature in the weekly mortality report for the week ending June 5, 1915, is the saving of 88 lives that would have been lost had the death rate for the corresponding week of last year prevailed during the past week. The rate for the first twenty-three weeks of 1915 is 14.44, compared with 15.15 for the corresponding period of 1914. Several of the infectious diseases show a slight increase, which, however, is offset by reductions in the death toll of other diseases of this group. The greatest increase is seen under the heading of bronchopneumonia.

Appointments at the Willard Parker and Riverside Hospitals.—The following appointments have been made to the staff of the Willard Parker Hospital: Dr. Edward D. Fisher, consulting neurologist; Dr. James T. Gwathmey, special anesthetist and instructor in anesthesia to the Willard Parker and Riverside Hospitals; Dr. M. C. Pease, assistant attending physician; Dr. William Ropes May, assistant attending physician; Dr. Charles H. Smith, assistant attending physician. At the same meeting, Dr. Lamont H. Fisher was appointed assistant attending physician and Dr. Harold Hays, assistant laryngologist to the Riverside Hospital.

The Typhus Fever Situation.—Encouraging reports concerning the campaign against typhus fever in Serbia have been received by the State Department in Washington. Suppression of the plague is said to be going steadily forward in the districts where the American Red Cross officers are at work. A request for supplies of cholera vaccine has been transmitted to the Red Cross headquarters, and the vaccine will be forwarded immediately. Reports from Montenegro state that conditions were alarming in some sections there, but that with the adoption of proper sanitary measures it is hoped a general epidemic of typhus will be prevented.

A Tribute from the Physicians of Havana.—According to *Paris médical* for May 22, 1915, the physicians of Havana, Cuba, in making a gift to the French Red Cross fund, have written to M. Millerand, Minister of War, their desire to testify to the affection and gratitude they feel for their old teachers and companions in the clinics. The tribute is signed by Dr. Francisco Dominguez, Dr. Agustín Varona y Gonzalez del Valle, Dr. José A. Presno, Dr. J. B. Landeta, Dr. Gabriel Casuso, Dr. Diego Tamayo, Dr. F. Mendez Capote, Dr. Eusebio Hernandez, Dr. Pedro Lamotte, Dr. Julio Irtiz Cano, Dr. Octavio Ortiz Coffigny, Dr. M. Sanchez Toledo, Dr. Antonio Diaz Albertini, Dr. Louis Montané.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Tuesday, June 15th, Mount Sinai Hospital Clinical Society; Wednesday, June 16th, Philadelphia County Medical Society (business meeting); Thursday, June 17th, Northeast Branch of the Philadelphia County Medical Society.

New Hampshire Medical Society.—At the 124th annual meeting of this society, held in Concord on Wednesday and Thursday, May 19th and 20th, the following officers were elected: President, Dr. Edgar O. Crossman, of Lisbon; vice-president, Dr. Edmund Fritz, of Manchester; secretary, Dr. D. E. Sullivan, of Concord; treasurer, Dr. D. M. Curcier, of Newport; trustee, Dr. H. L. Smith, of Nashua. The annual banquet took place on Thursday evening, Dr. John H. Gleason, of Manchester, presiding, and among those who spoke were Dr. Herbert K. Faulkner, of Keene, the retiring president, Dr. William Seaman Bainbridge, of New York, and the Governor of the State.

Southwestern Kentucky Medical Association.—The forty-fifth annual meeting of this association was held in Paducah on May 11th and 12th, under the presidency of Dr. W. W. Richmond, of Clinton, Ky. Officers were elected as follows: Dr. J. L. Dismukes, of Mayfield, president; Dr. W. F. Peeples, of Spring Hill, first vice-president; Dr. W. Z. Jackson, of Arlington, second vice-president; Dr. J. T. Reddick, of Paducah, secretary (reelected); Dr. H. G. Reynolds, of Paducah, treasurer (reelected); Dr. H. G. Hocker, of Arlington, historian (reelected). The regular semiannual meeting of the association will be held in Barlow in October.

American Aid for Belgian Physicians.—During the week ending June 5th the following contributions were received by the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession: Dr. Arthur G. Larkin, New York, \$10; Dr. John A. Hawkins, Pittsburgh, \$10; Medical Society of the County of Greene, Catskill, N. Y., \$15; Wilson County Medical Society, Fredonia, Kansas, \$15; Dr. Robert C. Davis, Johnstown, Pa., \$5; Dr. Emery Marvel, Atlantic City, N. J., \$25; Dr. G. J. Hagens, Chicago, \$15; Medical Society of the County of Westchester (second contribution), White Plains, N. Y., \$2.50; Rockland County Medical Society, Nyack, N. Y., \$28; San Luis Valley Medical Society, Alamosa, Colo., \$25; receipts for the week, \$150.50; previously reported receipts, \$7,008.50; total receipts, \$7,159.

Wood Alcohol in Toilet Preparations.—An investigation conducted by inspectors of the Department of Health of the City of New York, last year, disclosed the fact that more than one third of the toilet preparations sold in this city contained wood alcohol. The use of wood alcohol in all preparations for human use, either externally or internally, is forbidden by the sanitary code, and manufacturers have been repeatedly warned through their trade papers concerning this provision of the law. During the past two months, about 300 samples of toilet preparations were taken from barber shops and barber supply houses throughout the city, and it is gratifying to know that only a very small proportion of these were found to contain wood alcohol. It is the intention of the department of health to continue systematic inspections with a view entirely to suppress this dangerous use of wood alcohol.

Conventions and Congresses at San Francisco in Connection with the Exposition.—Eight hundred and twenty-two conventions and congresses, whose subjects cover the activities of the world along industrial, commercial, professional, and scientific lines, will meet in San Francisco and the bay cities in connection with the Panama-Pacific International Expositions during the 288 days of its existence. A careful estimate places the number of delegates and visitors which will be brought to California by these conventions and congresses at 600,000 in round numbers. Of the total number of conventions, twenty-four will be devoted to medicine, hygiene, hospitals, and allied topics. These conventions will all be held during the month of June, beginning with the convention of the American Society of Tropical Medicine, June 14th to 16th, including the international and national nurses' associations with 9,000 delegates, and culminating with the sessions of the American Medical Association, June 21st to 26th. At this last named convention 245 prepared addresses and papers will be submitted.

The Virginia Public Health Association met in annual session in Lexington, Va., on Thursday, May 13th, and elected the following officers: Dr. J. W. H. Pollard, of Washington and Lee University, president; Dr. C. C. Hudson, of Danville, first vice-president; Dr. T. J. Pretlow, of Newport News, second vice-president; Dr. W. B. Foster, of Roanoke, secretary-treasurer; Dr. Roy K. Flannagan, of Richmond, assistant secretary-treasurer.

Child Welfare Sunday.—As one feature of the 1915 educational campaign for the saving of babies' lives, the State Department of Health has designated Sunday, June 20th, as Child Welfare Day. Pastors of all denominations have been asked to cooperate and are receiving from the department of health data upon which to base sermons or short talks at one of their services on that Sunday. The educational campaign of the Division of Child Hygiene of the department of health last year brought about a decrease in the infant death rate from 137 to 112 per 1,000 births. This means that approximately 1,400 deaths of infants were prevented. The campaign was almost entirely educational. Mothers were shown how to care for and feed their children, and communities were aroused to the necessity for child welfare work. Forty-five cities were visited by exhibits and 150 popular health lectures were given. Exhibits were also sent to county fairs and the smaller villages.

Personal.—Dr. William Peterson, principal of McGill University, Montreal, was made a Knight of the Order of St. Michael and St. George, on the occasion of the birthday of King George on June 2d.

Dr. William T. Councilman, Shattuck professor of pathological anatomy at the Harvard Medical School, was the guest of honor at a banquet given in Baltimore on May 13th by his colleagues and former students at the Johns Hopkins Medical School, where he held the position of associate professor of pathology from 1886 to 1892.

Dr. J. Solis Cohen, honorary professor of laryngology at Jefferson Medical College, Philadelphia, was the guest of honor at the annual banquet of the Southeast Branch of the Philadelphia County Medical Society, Thursday evening, June 10th.

Dr. Harold P. Goldberg has been elected ophthalmologist to the Episcopal Hospital, Philadelphia.

Dr. Edward Livingston Hunt, instructor in neurology at the College of Physicians and Surgeons, Columbia University, has been appointed assistant professor, and Dr. Ward A. Holden, an instructor in ophthalmology, has been made professor of ophthalmology.

Dr. Richard H. Creel, Passed Assistant Surgeon of the United States Public Health Service, announces that he will not be able to accept the position of health commissioner of Boston, on account of ill health. Doctor Creel recently obtained leave of absence from the service in order to take this position.

Dr. Ernest L. Walker, formerly chief of the biological laboratory of the Federal Bureau of Science, and chief of the department of medical zoology at the University of the Philippines, Manila, has been made associate professor of tropical medicine at the George William Hooper Foundation for Medical Research, University of California.

Dr. Thomas Ordway, of the Harvard Medical School, has been appointed dean of Albany Medical College.

Dr. E. F. Malone has been promoted to be associate professor of anatomy in the University of Cincinnati.

Dr. Howard B. Lewis, an instructor in physiological chemistry at the University of Pennsylvania, has been appointed to an associate professorship in the University of Illinois.

Dr. Victor C. Vaughan, dean of the medical faculty of the University of Michigan, and president of the American Medical Association, will deliver the address at the annual commencement of Jefferson Medical College, Philadelphia, on June 15th, his subject being A Doctor's Ideals.

Dr. Lewellys F. Barker, of Baltimore, was elected president of the American Neurological Association, at the annual meeting held recently in New York.

Dr. Samuel G. Dixon has been reappointed commissioner of health of Pennsylvania. This is his fourth appointment to this position, and on June 6th he will have completed ten years of service. Under Doctor Dixon's direction the Pennsylvania Department of Health has achieved a high place among public health organizations in the United States.

HEMADENOLOGY:* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M. D., LL. D., Sc. D.,
Philadelphia.

(Ninth Communication.)

THE THYMUS (Continued).

THE THYMUS IN IDIOCY AND INFANTILISM.

In our review of the physiology of the thymus gland we emphasized the close relationship between this organ and idiocy. Thus, removal of the thymus in dogs was found to give rise to clear evidences of this disorder. In the clinical field, idiocy has also been found to coincide with the absence of this gland. Thus, while in sixty-one mentally normal children from one month to thirteen years of age who had died of various diseases, Katz found the thymus normal in all, in twenty-eight mentally weak children examined post mortem by Bourneville, the thymus was absent. In another series of 292 cases of mentally deficient children the organ was absent in seventy-four per cent. At Bicêtre also, from 1890 to 1913, autopsies of 408 nonmyxedematous idiots ranging mostly from one to five years of age, none being over fifteen years, showed the thymus to be present in only 104 instances, according to Morel. That idiocy is intimately connected with this gland, in contradistinction with the thyroid, is well shown by the fact that Lange and Dicker, Garré and Lampé have reported cases of idiocy in which at autopsy the thyroid was found quite normal, while the thymus was very small.

A regrettable feature of all these reports, however, is that the forms of idiocy in which the thymus has been found morphologically deficient have not been clearly identified. It will be our aim, therefore, to remedy this defect as far as possible.

Before proceeding with this phase of the problem, it might be well to recall that the popular phrase, "the backward child," but too often denotes an unrecognized mild or larval form of idiocy which, identified early in the child's career, might have rendered possible the use of therapeutic measures capable of arresting the morbid process.

The importance of distinguishing separately the various types of idiocy is that none of them can, with one exception—myxedematous idiocy or cretinism—be attributed clearly to defective activity of any one special ductless gland. Each case seems to give a composite picture in which the stigmata of disorders of two or more of these organs may be discerned if carefully sought. The practical bearing of this fact is self evident; it is by grouping the stigmata of the various ductless glands involved in the morbid process that we can determine the treatment indicated, i. e., the glandular products to be prescribed. If a given case shows the stigmata, more or less clearly defined, of deficient activity of two or more ductless glands, these are administered,

along with such other agents as may be required. To emphasize the importance of this fact, a type of idiocy which appears to bring in three ductless glands will first be described:

Mongolian idiocy. In this form, the etiology is clear in only one direction, viz., that no special hereditary vice or disease is communicated to the child, though here and there syphilis, gout, alcoholism, a violent emotion, and other disorders usually incriminated may be found in the near or remote parentage. Analyzing this point closely, however, we are soon brought to realize that such disorders are not direct factors in the genesis of Mongolian idiocy, though they may add some influence to that which seems seriously to impose itself, e. g., parental imbalance or procreative asthenia. Thus, the majority of these cases occur as offspring of couples that have been prolific, the little Mongolian being the last brother or sister of many normal children. Leeper (1), for example, in a study of 176 cases of Mongolian idiots found that one half of these subjects were the last born of large families, and that neuroses were common in their ancestral histories. Again, they will occur as the product of aged couples or where there is a marked disparity in ages. To use a homely comparison, the factory is, some way or other, worn out *in toto* or in part, and the product is below par. This is illustrated by the characteristic facies of the Mongolian child which is that of all other patients of the same special class. They look alike to such a degree, in all countries, that they might be taken for closely related members of a single family.

Important from the standpoint of etiology in its bearing upon the pathogenesis and treatment of Mongolism, is the fact that the Mongolian facies is not a mere result of hazard. A deeper search into its causes than has been accorded this phenomenon so far, indicates clearly its source—one, indeed, of a biochemical order quite in keeping with observed facts. Briefly, if our knowledge of the dietetics of the Mongolian branch of the human family is taken into account, many of the morbid phenomena so common among the poor of that race are plainly ascribable to what hygienists have termed an "unbalanced diet."

Everyone knows that lack of fresh fruits and vegetables with a preponderance of salt meats will cause scurvy, and also that beriberi results from a monotonous diet, of which polished or overmilled rice is the main component. But we are aware also that rickets and marasmus are produced through lack of animal and an excess of starchy foods. Now, the Mongolian race, particularly that part of it composing the "coolie" element in Asia, shows indubitably the subtle influence of centuries of unbalanced diet. The polished rice which constitutes their main

* Hemadenology, from the Greek: αἷμα, blood, ἀδένε, gland, λόγος, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

diet fails to furnish them, owing to the absence of the pericarp sacrificed in the milling process, an adequate proportion of elements necessary to the physiologically perfect organism. Prominent among these is phosphorus. The labors of Fraser and Stanton (2), Aron (3), Dehaan (4), and others have shown that the outer layer of the rice, the pericarp, removed during the process of milling, is precisely that which contains soluble organic compounds rich in phosphorus. Conversely, Breaudat and Denier (5) found that the administration of this pericarp in the form of rice bran proved prophylactic against the development of beriberi; it has also been used as a cure for the disease by Heiser (6) and others. Briefly, the deficiency of phosphorus in the form of phosphorus pentoxide in milled rice has been identified as the passive cause of beriberi. In individuals who, through a long line of forbears, have become habituated to its use, with perhaps a little fish, as main diet, as is the case with the majority of rice fed Asiatics, phenomena of another order become manifest, viz., those of deficient development of tissues in which phosphorous is the preponderating agent, the *osseous and cerebrospinal systems and also primarily of the thymus gland which, through its nucleins, insures the development of these systems.*

Analyzing the pathogenesis of Mongolian idiocy from this standpoint, the kinship between the characteristic features of this disease and the attributes peculiar to rice fed Mongolians is striking. The small size of the Japanese, Siamese, Tonkinese, Annamites, etc.; the slanting eyes, the narrow palpebral fissure, and the epicanthus, especially marked in the Chinese, and the high cheek bones, are also peculiar to the Mongolian idiot. In the "yellow race," so called, the skin is pasty, yellowish, doughy, but smooth; the hair is straight, the nose is squatty, exposing the openings of the nostrils—all morphological characteristics of the Mongolian idiot. Another peculiarity of the latter is his predilection to infection and the deficient resistance shown to infectious diseases; we know how readily rice fed Asiatic coolies acquire such diseases and succumb to them.

That the mentality is not necessarily dwarfed in the rice fed Asiatic, as it is in the class of patients in question, is doubtless due to the adjustment of his nervous system to his deficient diet throughout the thousands of years he has used it. But there is greater disparity between the lower and the higher classes of Asiatics in this particular than there is among the white races, owing doubtless to the greater variety of foods the upper classes use in Asia, which causes them to avoid unconsciously the harmful influences of a deficient intake of phosphorus. This probably accounts also for the fact that these upper classes seem, in most instances, not to resemble their ill fed compatriots, the slanting eyes, squatty nose, etc., being comparatively rare among them.

With this clue to the pathogenesis of Mongolian idiocy as a working proposition, the status of the thymus gland in the morbid process seems clearer. All the Mongolian characteristics that appear in these cases coincide suggestively with physiological, pathological, and clinical phenomena traced to this organ in our preceding communications. The

squatty nose is due, as is well known, to inadequate development of the nasal bones. In the patients in question, the stigmata of deficient bone growth, so distinct in thymectomized animals, are very marked. Defective bone development is shown by the low average stature; the long bones are smaller and shorter than usual; hence the undersized body due to shortness of the legs and arms, and the stubby square hand with its short tapering fingers. The skull likewise shows its participation in the morbid process; the anteroposterior diameter being almost equal to the transverse, a fact which causes the head to appear round. Although the forehead usually bulges anteriorly, the plan of the face and that of the occiput tend to parallelism. The circumferential measurements are invariably below normal, sometimes as much as two and one half inches, the average in twenty-six cases studied by J. Muir (7) being one and one third inch. This is an important practical feature for the deficient skull development, because the resulting reduction of brain capacity when the fontanelles are closed (which fortunately occurs late), tends to reduce the efficiency of therapeutic measures calculated to improve the mental status of the child.

Additional evidence as to defective bone nutrition is shown by the frequency, in these cases, of rickets, of which clear evidences are commonly discernible at birth. This applies also to other congenital defects such as club foot, dislocation of the hips, etc. Palatal deformities are present in approximately two thirds of the cases. The teeth, surrounded by hypertrophied gums, are irregular and undergo caries early, particularly in the low grades of the disease; they appear late, the second dentition being also delayed.

While these phenomena point clearly to the thymus as deficient, a similar condition of other ductless glands is suggested by stigmata which are deemed characteristic of deficient secretory activity of these organs. The *thyroid* seems to be one of these. Thus, while the skin may be soft in some patients, in others it is dry and rough, as is the case with cretins. As in the latter also, the tongue is thick and heavy, and protrudes more or less, but it is the seat of phenomena which seem to be specific to Mongolian idiocy; it is fissured transversely and very rough owing to greatly hypertrophied papillae. The lips may also be thick and everted, though the body does not show evidences of myxedema.

Subnormal temperature, with marked sensitiveness to cold and sluggish circulation, is another symptom commonly noted in cretinism, which also prevails in Mongolian idiocy, but the *adrenals* might likewise underlie these phenomena, owing to their marked influence on cardiovascular dynamism and on tissue oxidation. Indeed, the development of the entire musculature is considerably delayed; muscular power likewise. The ligaments are so loosely strung, in fact, as to permit the freest movements and contortions; the fingers, for example, may be bent backward upon the dorsum of the hand with the utmost ease. And yet all muscular movements are clumsy, being poorly coordinated, a feature which, in affecting the lingual musculature, contributes considerably to the retardation of

speech. The ocular muscles are likewise involved, as shown by the frequency of strabismus and nystagmus. This applies also to the abdominal muscles, hernia, especially the umbilical form, being common. The abdomen itself is usually large and distended owing to relaxation of its musculature.

There is no evidence pointing to the participation of other ductless glands—the pituitary, ovaries, testes, pineal, etc., though the pancreas, which as we have seen is looming as a predominant entity in the cellular vital process, may take part in the process. Yet no evidence revealed so far warrants its introduction into the pathogenesis of the disease. We are, therefore, left, so far as stigmata are concerned, with the hypothyroidism, hypothyroidism, and hypoadrenalism as the etiological tripod of Mongolian idiocy.

This enables us to understand phases of the disease which do not come under the head of "stigmata." I have long urged that the nucleins supplied by the thymus, and the secretions of the thyroid and adrenals took jointly an active part in tissue metabolism and immunity. While, as we have seen, inadequate activity of these organs lowers the development and functional activity of the osseous, muscular, and nervous systems, it should, therefore, also lower, in the light of my views, the defensive efficiency of the organism. That such is the case is shown in various ways. The Mongolian idiot is peculiarly subject to bacterial infections of the tissues most exposed to them, the respiratory and intestinal tracts, the eyes, skin, etc. He is an easy prey, therefore, to tuberculosis, bronchopneumonia, pneumonia, influenza, and bacterial diseases of the intestinal canal, succumbing promptly under their effects. The twenty-fifth year is reached in but 9.4 per cent. according to Wiggandt.

Deficient metabolism, initiated during uterine life, accounts also for the idiocy. Along with the rest of the body, the intelligence lags behind, owing to deficient development of the organ of mind. The Mongolian infant is unusually well behaved, so good, in fact, as to elicit comment and favorable comparison with the average lusty baby. Small at birth, it develops about one half as rapidly as the normal child, but its emotions are still slower in developing, in keeping with its powers of observation which in some cases are virtually *nil* during the first year. It will lie in bed placidly for hours at a time, apparently quite contented. As some evidence of mental activity appears, it follows a common trend. The child is not morose or torpid, as is the case with cretins, it is amiable and even affectionate, and shows a remarkable predilection for music and dancing. The imitiveness is sometimes so marked as to suggest atavism, a perpetual grin and frontal creases in some cases lending additional color to such a possibility. Important in this connection, particularly with a view to prophylactic treatment, is that the Mongolian cast of features is often noticeable very soon after, if not at birth.

What are the pathological characteristics of these cases? At the beginning of this article we referred to absence of the thymus gland in three fourths of deficient nonmyxedematous children, as shown at autopsy in over four hundred subjects. Had the thymus in those which formed the exceptions been

examined, many would doubtless have been found hypertrophied where, at least, Mongolian idiocy was concerned. Such has been the case in two of our own patients, as shown by x ray examination. This does not mean necessarily overactivity of the organ, but, as is the case with the hypertrophied thyroid in the myxedematous, it is an effort on the part of the deficient organ to make up for its shortcomings. In other words, we may have an enlarged thymus in Mongolian idiocy, owing to an effort at compensation. This is another practical feature, for where we find the thymus persistent or even hypertrophied, thymus is likely, in conjunction with other agents to be mentioned, to prove of service.

As regards treatment, Mongolism is about the most rebellious of all forms of idiocy, judging from the literature of the subject. Comby (8) for example, who urges correctly that it is more frequent than is believed, writes that the results of treatment have not been found encouraging. Some good, it is stated, may be effected by hygienic means, especially good and substantial nourishment and country air, while in mild cases satisfactory results may be obtained by appropriate education. Other authors have tried, in turn, thymus, thyroid, the iodides, mercury, etc., the whole gamut, in fact, of agents suggested by any possible etiological factor that the history of a given case might indicate, but without avail.

Our efforts should tend, if better results are to be attained, in two directions, prophylactic and remedial.

As to prophylaxis, we should be constantly on the watch for Mongolism when the causative conditions, aged parents, marked discrepancy in the age of parents, prolific parents with the new infant as last offspring, strong mental emotion or affliction in the mother, syphilis and alcoholism are features of the parental history. A very quiet and "good" baby, giving the parents so little trouble that they take pride in mentioning it, may be found, on examination, to show the facial characteristics of Mongolism. With unusually loose joints, as shown by an abnormally wide range of motion, unusual helplessness and muscular asthenia, as shown by inability to hold up its head when it should do so, etc., and the various symptoms described in the preceding pages, a diagnosis as applied to the infant is warranted. *Treatment of the infant through the nursing mother is then indicated.*

We have seen, in preceding articles, that organic products are transmitted to the child through the maternal milk. This may be taken advantage of to modify the trend of the infant by supplying to its body the organic products it needs for its development. Thymus gland, five grains; thyroid gland, one grain; and pituitary gland, one grain (to replace adrenal gland advantageously), three times a day *during* meals, with a varied diet, and, as much as possible, out of door life, may be given. Where maternal nursing or wetnursing cannot, for good reasons, be carried out, *direct nursing, using goat's or cow's milk*, in some such way as described in our two preceding articles, is indicated, adding thereto the organic products finely powdered and in reduced doses to the feeding flask (Fig. 1, JOURNAL

for May 29, 1915, page 1126), which should contain enough milk for one nursing.

The older the little patient when first seen, the smaller are the chances of success. Yet in all *some* improvement is obtained by means of the organic agents given jointly, the doses mentioned for a nursing mother being suitable for a child of five years. The dose of thymus may be gradually increased until, if need be, fifteen grains are given three times a day. If the stigmata indicating insufficiency of any one special gland are especially prominent, the dose of that gland can at least be tentatively increased. The hypophosphites, to enhance the nutrition of the cerebrospinal system, and iron to assist in building up the hemoglobin are of signal advantage. A substantial and varied diet is likewise indicated.

The mental status may be materially improved, but at the cost of much patience and perseverance. The imitative instinct of the little patient should be taken as starting point of a systematic education, selecting a special line of work, music for instance, to which the child is normally attracted, as the main aim. He should not be deprived of the company of normal children, the excitement and fun involved, and the out of door exercise doing much to enhance the functional activity of his ductless glands.

The forms of idiocy in which absence of the thymus is the predominating factor will be considered in our next communication.

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(To be continued.)

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT

March 1, 1915.

Furuncles and Furunculosis, by P. G. Unna.—All furuncles are caused by the invasion of the glands about the hair follicles by pus organisms which form small hollow cylinders around the hair and lie in the centre of the abscess. Incision serves to spread the infecting organisms into healthy tissue and should never be employed. The most satisfactory method of treatment consists in the shaving of the hair in the neighborhood, determination of the exact direction of the hair follicles, and complete destruction of the invading organisms and pus by puncture with a hot metal point. Healing is prompt, no dressings are required, the scar is extremely small and there is no spread of the infection. Much the same remarks apply to furunculosis, the multiple lesions being usually due to local spread through scratching, etc. The treatment should be the same. In addition to this cauterization, furunculosis may be very satisfactorily treated by the application of either of the following pastes which are left on for several days. The first consists of kaolin twenty parts, glycerin ten parts and ichthyol five parts; the

second of purified sulphur, zinc oxide and calcium carbonate, of each ten parts, and glycerin thirty parts. Under the application of these pastes the furuncles soften and go on to absorption with little or no scar formation, and by their use it is often possible to avoid cauterization.

The Localization of the Sense of Touch, by Felix Boenheim.—A patient was observed who had received a bullet wound of the scalp and skull some days before. The injury lay over the left parietal bone at a distance of about six cm. from the sagittal suture in the direction of the outer inferior corner of the orbit. The external table of the bone was splintered off for a few mm. at the lower end of the wound, but the internal table was not injured. The patient was right handed. The nervous responses were normal everywhere except in the right arm, which was decidedly weak. Here sharp and dull objects could not be distinguished, deep pricking gave rise to only slight pain, movement of the member was very slowly perceived, and the ability to distinguish objects by touch was lost. There was no loss of the power of localization. There were no sensory disturbances of the nature of irritability, nor were there electrical signs of degeneration. Temperature sense was not lost. Believing that the lesion was central and due probably to local hemorrhage beneath the site of the wound, the centres for the disordered senses of touch in this case would seem to have been located in the paracentral and central Rolandic gyri. Recovery was complete after four weeks.

March 8, 1915.

Tetanus in the Field, by Goldscheider.—According to the author's observations, the muscles nearest the point of infection were the first to be involved; they usually showed local preliminary spasms even in generalized tetanus and that as recovery progressed they were the last to become free from spasmodic twitching. The superficial and deep reflexes were also found to be increased early in the infected extremity; thus stroking of the sole of the foot would often throw the leg into tetany while the rest of the body including the opposite leg remained relaxed. Babinski's reflex, ankle and patellar clonus also were observed to be at first local phenomena. In at least half of the cases, the Babinski reflex was present, but when the disease was developed, the sign was often hard to detect. It occurred both as a local sign and as a sign of general increase in reflex excitability. Most frequently ankle clonus, increase in the plantar reflex and the Babinski phenomenon were encountered simultaneously. The Babinski reflex was found to be without relation to the occurrence of trismus and was of no prognostic value. The jaw reflex was usually exaggerated. A symptom of tetanus not previously recorded was the increased irritability of the nervous system to mechanical stimuli, exactly as is found in tetany. The ulnar phenomenon was frequently encountered and was of diagnostic value. Another common sign was the occurrence of tenderness to pressure at the base of the skull behind. All of these signs were found to be of much aid in making an early diagnosis of tetanus in suspected cases, and they are not given in the textbook descriptions of the disease.

A Simplified Method for the Intravenous Administration of Drugs, by Ernst Jeger.—Jeger exposes a suitable vein in the bend of the elbow, using local anesthesia, and ties it off at its lower end. Into the vein he then inserts a small soft rubber tube in the end of which is a small silver or aluminium cannula to keep it patent. A ligature is then placed beneath the upper end of the vein and left untied. The wound is dressed with moist bichloride gauze and the rubber tube is placed between two pieces of the same gauze, thus perfectly preventing infection. Before inserting the tube it is thoroughly coated inside and out with vaseline to prevent clotting. Injections or infusions are readily made at any time by inserting the needle into the rubber tube. After each injection the tube is tied off near the needle hole. It is well to leave some normal salt solution in the tube after each injection to delay clotting. If the injections are being made fairly frequently the vein will remain open for four to seven days. When the need for intravenous injections has passed, the vein can be cut over the cannula, which is then readily removed, and the ligature previously placed is used to tie off the central end of the vein. Healing then progresses rapidly by granulation.

WIENER KLINISCHE WOCHENSCHRIFT.

May 6, 1915.

Bacteriotherapy of Ozena, by S. Mazza.—A polyvalent vaccine prepared from *Coccobacillus ozenæ* was employed. The Wright method of computing the number of bacteria was employed; the bacteria were killed by ether. The vaccine was used in cases in which the diagnosis had been determined. At first 100 million bacteria were given. As no reaction followed, the dose was raised to 500 million. The first changes noticed were active congestion of the inferior turbinate associated with small extravasations of blood—occasionally epistaxis. The day following the injection the white, parchmentlike spots observed in this disease disappeared and vascularization took place. The character of the secretion became thinner and more abundant and patients who previously could not blow their nose because of the thick crusts found no difficulty in doing so after the injection. The second dose was given after an interval of a week and the beneficial result following it was more noticeable. The first vaccine employed was prepared from three strains of bacteria; later one prepared from six strains was used and the results were still more favorable.

Secondary Suture of Tendons in Gunshot Wounds of the Hand, by Karl Wagner.—The operation can be performed under local anesthesia. A small dish is boiled with the instruments in which 0.2 gram novocaine is dissolved in from ten to twenty c. c. of boiling water. To this is added five or six drops of one in 1,000 adrenaline which can be sterilized by boiling; the mixture is then allowed to cool. The anesthesia obtained by this method lasts about an hour. An Esmarch bandage is applied to the upper arm so that the radial pulse is obliterated. Tincture of iodine is used as a local disinfectant and the part anesthetized. The tendons are found and sutured and, when necessary,

split longitudinally to fill in a gap. At the finish of the operation the field is swabbed with tincture of iodine, a three per cent. solution of hyperol is poured over it, the Esmarch bandage is removed, the hemorrhage checked, and the wound sutured. In order to prevent secondary adhesions of the tendons, they are inclosed in sheaths made of calves' arteries which are preserved in Ringer's solution; if the arteries are fresh they are placed in three per cent. hyperol solution before using. These are subsequently absorbed, at a time when adhesions of the tendons no longer take place. In some cases this arterial sheath was not employed, the patient making active and passive movements of the hand from the outset and no adhesions were observed. Patients in whom there is marked flexion of the fingers, are put into a splint for about eight days, the splint being removed every second day to allow of active and passive movements of the fingers.

Epidemic Meningitis, by Adolf R. von Kutschera.—Several cases were observed in a regiment stationed in a place where meningitis had occurred only sporadically. The epidemic affected one company of the regiment in particular and on bacteriological examination it was found that twelve of this company were carriers. They were isolated and treated locally and with injections of dead meningococci. In spite of the isolation new cases appeared, and on further investigation it was found that eighty-three of the company had not been included in the previous examination, thus explaining the appearance of the new cases. The bacteriological diagnosis of meningitis has to be made where the cases occur, as the meningococci have little resistance and cultures cannot be sent a distance. For this purpose temporary, movable laboratories should be employed. In the treatment of meningitis good results were obtained with intralumbar injections of antimeningococcic serum, the dose being repeated if necessary.

May 13, 1915.

Relapsing Fever, by Karl Walko.—Some of the cases run a typical course. The fever instead of rising and falling by crisis may do so gradually; the febrile period may be as long as fourteen days. At times the symptoms are more marked in the relapse than in the first attack. The intervals may be as long as four to six weeks. Absolute immunity does not exist, as a reinfection was observed after a period of eleven weeks. Epistaxis was observed in a number of cases; also a subicteroid tinge of the skin. Edema was noticed in eleven per cent. of the cases; in only twenty-one per cent. was the spleen enlarged either on palpation or percussion. Cases in which the spleen showed enlargement seemed to run a more favorable course than those in which the spleen remained small. Cases which presented a mixed infection were more severe. Among the complicating infections, cholera, typhoid, typhus, dysentery, and epidemic meningitis were observed. In the treatment, neosalvarsan has been employed intravenously in the dose of 0.4 to 0.6 gram. When given in the apyretic period the results have been just as good as when given during the course of the fever.

Ergotism and Tetany, by Alfred Fuchs.—The patient, a soldier aged twenty years, had been sent

from the front with the diagnosis of tetany and frostbites. He presented all the typical symptoms of tetany and, in addition, a gangrenous mummification of the great toe of the right foot, the latter condition being also seen, but to a lesser degree, in the corresponding toe of the left foot. A careful review of the history brought out the fact that, while he had been standing in damp trenches, he never had been in snow or ice. In view of these facts a diagnosis of ergotism was made and all farinaceous food forbidden. No cathartic was given. His condition began to improve and the stools, which at the outset showed *secale cornutum* in great numbers, became more and more normal and the *secale* finally disappeared entirely. The gangrenous toes also healed rather quickly. The poisoning probably took place through the eating of bread prepared from infected rye.

Oxyprotein Acid in Carcinomatosis, by Manfred Damask.—In the urine of carcinomatous patients a nitrogenous substance identical with the oxyprotein acid found in the urine of dogs is present in excess. In computing the amount of this substance present it is usually isolated in the form of its barium or mercury salt. The barium salt is insoluble in alcohol but soluble in water. A series of 121 cases was examined. Among these were included cachectic cases and patients having had long continued fever, as here the error in diagnosis is most likely. In noncarcinomatous cases the proportion of oxyprotein acid ranged from 1.5 to 2.7 per cent.; in carcinomatous cases, from 2.8 per cent. to 4.7 per cent. The urine of three pregnant women was examined, one showing 4.8 per cent., the other two being within normal limits. In nine per cent. of cases of tuberculosis, the proportion was higher than normal, reaching as high as 5.3 per cent. Of seventy-six noncarcinomatous cases, five gave a positive reaction, four of which were cases of tuberculosis. In view of these findings the increase of oxyprotein acid may be considered of value in the diagnosis of carcinoma, inasmuch as a positive reaction is rarely observed in cases other than carcinomatous, tuberculous, or of pregnancy.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

April 6, 1915.

Meningococcic Arthritis and Its Importance from the Prophylactic Standpoint, by Paul Sainton and Jean Maille.—Attention is called to the highly characteristic joint manifestations of meningococcic infection, and to the fact that meningococcic arthritis may be the only condition clinically noticeable in the presence of actual infection of the meninges. The knee joint is affected, generally alone, occasionally in conjunction with other joints, e. g., the shoulder. When occurring in the course of cerebrospinal meningitis, meningococcic arthritis develops on the fourth to the sixth day. Pain is inconsiderable or entirely absent, but an abundant intraarticular effusion rapidly forms. The skin over the joint retains its normal coloration or exhibits merely a few patches of erythema. The temperature ranges between 39° and 40° C. The fluid in the joint is purulent from the outset, thick, and with a greenish tinge. Two or three days later, the fluid is canary yellow and separates into two layers.

A salient feature of these meningococcic joint infections is their mild nature, the fluid generally disappearing, even without treatment, in two to five days. In several cases of arthritis of this type, unaccompanied by meningeal symptoms of any sort, meningococcic pus was found upon lumbar puncture. The significance of this fact, from the standpoint of prophylaxis, is obvious. Where the typical meningococcic form of arthritis is met with, the patient should be isolated and treated as a carrier of the disease, in spite of the complete latency of the meningeal morbid process. In the treatment, five to ten c. c. of Dopter's antimeningococcic serum may be injected directly into the joint; arthrotomy is rarely necessary.

Atypical Typhoid Conditions, by A. Sartory, L. Spillmann, and P. Lasseur.—An account is given of various atypical typhoid states met with in a military hospital in eastern France. Blood cultures were made in over eight hundred cases and revealed, among the atypical types, instances of infection with the A and B paratyphoid organisms, and a combination of the paratyphoid organisms with the typhoid bacillus, colon bacillus, streptococci, or staphylococci, or with a diplococcus, either alone or in association with one of the paratyphoid organisms. In general, the symptoms in these cases were milder than in typical typhoid. The temperature curve showed extensive and nearly always irregular fluctuations, with short periods of continuous fever at certain points. Diarrhea was far from constant, constipation not infrequent, rose spots scanty or absent, diffuse bronchitis often present, jaundice at times noted, and epistaxis exceptional. The only complications met with were bronchopneumonia, ulceration of the lips, soft palate, and uvula, punched out and covered with yellowish gray discharge, and polymorphic erythemas accompanied by painful joint reactions. Headache was frequent, but stupor rare.

PRESSE MÉDICALE.

April 1, 1915.

Psychoneuroses in Military Practice, by Grasset.—The psychoneurotic patients are divided into three groups: Sensitivomotor, sensorimotor, and emotional. In each of these the characteristics of all three groups are present in some degree, but one greatly predominates. In the first group are comprised the patients commonly spoken of as suffering from traumatic neurosis or hysterotraumatism, and exhibiting, in particular, a hemiplegia, or rather a hemiparesis, with anesthesia. The paralysis is peculiar; at first sight it appears much more marked than is actually the case; one can cause the patient to perform, slowly and with effort, movements of which at first he was incapable. Contractions play an important part in the loss of motor function; they differ from those of organic spinal disease, for the tendon reflexes are not exaggerated. Anesthesia is superficial only, and usually involves one half of the body, though sometimes only a segment of a limb. In some cases the psychoneurosis is spinal, the patient exhibiting spinal curvature, pain, and tenderness; or, it may be splanchnic, disturbances of circulation, respiration, or digestion being produced. In the sensorimotor psychoneuroses, the senses of sight and hearing and the processes of

speech are abolished, owing to some violent commotion, such as the bursting of a shell. In the third or emotional group of cases, the typical phenomena are disturbances of sleep, altered disposition, and especially, the production of emotional outbursts by pressure on hysterogenic spots, such as the scar of a wound, the inframammary region, the angle of the scapula, or the iliac fossa. Cases of intermediate severity can be successfully treated with hot baths, static electricity, massage, mechanotherapy, motor reeducation, tonic drugs, and psychotherapy. The most severe cases must be sent home or aggregated in special hospitals, where isolation and expert treatment can be applied.

Prevention of Wound Infection, by Eynard.—Gasoline is recommended for the purpose of removing fatty material from the wound and skin surfaces, preparing them for the application of tincture of iodine and an aseptic dressing. The attendant's hands should also be washed with gasoline. This agent is neither irritating to the wound nor to the hands—even on frequently repeated use—and leaves the tissues dry, a condition essential for the perfect action of iodine. It is less volatile, dangerous, and costly than ether, and by its use, according to Eynard, secondary infection will be prevented in numerous instances.

RIFORMA MEDICA.

May 15, 1915.

Blood Elements in Chromogenic Reaction, by C. Rubino.—A method is described of studying the morphological, structural, and functional properties of the elements of the blood, with benzidin, a guaiac resin. Under the microscope are seen three fundamental colors, indigo blue, yellowish green, and orange, which resist decolorization with alcohol. The red cells with benzidin take the blue color, either throughout or only at the periphery, while with guaiac they become greenish. The white cells become yellowish gold with refractile granules, but without nuclear differentiation. Some leucocytes, especially polynuclears, show minute bluish granules. Those leucocytes with larger blue granules seem to be eosinophiles, when compared by means of Papenheim's method.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

May 21, 1915.

Measuring Dorsal Flexion of the Hand, by D. Castellanos.—It has been said that dorsal flexion of the hand is influenced by age and occupation, that the right hand has less flexion than the left, while in left handed people sometimes one hand and sometimes the other shows the greater degree of flexion. Finally, it is said that criminals show more marked dorsal flexion than either the normal or the sane. Castellanos has devised an instrument which he calls a palmar goniometer for the measurement of such flexion, and he urges that a study be made of the subject, as it presents very interesting possibilities in anthropometry.

Gastric Ulcer, by G. Campo.—In 715 cases, vomiting occurred in 59.5 per cent., with violent gastric pain which continued until relieved by the emptying of the stomach. In seven per cent. of cases vomiting was provoked for the relief of pain

and distress. When hypersecretion existed the vomited matter was watery, abundant, and highly acid; when there was pyloric stenosis there was residual material of several days' food with a fetid odor. Other symptoms noted were diminution of appetite during attacks, sensation of weight and distention in the stomach, almost constant constipation. The x ray was of great service in diagnosis and frequently revealed gastropsis and biloculation, derangement of peristalsis, dilatation and hypertony which were not even suspected by other methods of examination. In fourteen cases out of the 715 studied, there co-existed duodenal ulcer; in only two of which no pain nor vomiting occurred, but merely melena. Hypersecretion was present in 9.6 per cent. of cases and pyloric stenosis in 14.5 per cent. Biloculation was seen in eleven cases and perforation of the stomach in seven, ten patients had appendicitis, while twenty-nine had tubercle bacilli in the sputum. In almost all such tuberculous cases, the gastric symptoms preceded the pulmonary, thus strengthening the view that the gastric ulcer was a primary tuberculous focus with secondary involvement of the lung.

SEMANA MÉDICA.

April 15, 1915.

Protection against X Rays, by C. Heuser.—Factors in the causation of ill effects of x rays are the rays themselves, secondary rays, calorific action, electrostatic charge or electric condensation, chemical transformation, biological action, and lastly, ill defined actions which produce transformation of cellular elements, degeneration, atrophy, exacerbation of generative power and cellular destruction. The most frequent result of the actions of the rays is a dermatitis which may go on to neuritis in the region affected, or even in a distant part of the body. This action seems to be cumulative, resembling in this way anaphylaxis. If sufficiently long intervals intervene between the use of the x ray apparatus, the effect seems to pass off. It would seem that persons engaged in the manufacture of x ray tubes seem to become immune or saturated. Nervous alterations produce intense headache, neuralgic pains, cardiac distress. The serious and frequently incurable nature of radiodermatitis makes it of importance that the x ray operator should be thoroughly protected while performing this work. Heuser describes a cabinet lined with lead with a number of apertures having lead glass for observation purposes; the apparatus insures complete immunity to the radiographer.

BRITISH MEDICAL JOURNAL.

May 22, 1915.

Treatment of the Toxemia of Later Pregnancy, by John Byers.—Cases occurring after the sixth month of gestation are grouped together; of these there are three main types. The first, or pre-eclamptic toxemia, covers cases from the mildest up to the most severe, but not such as have convulsions or coma. Nervous symptoms, such as headache, lassitude, dizziness and somnolence; disturbances of vision; and edema with albuminous urine mark this type. The second form is particularly characterized by the severity of the renal dis-

turbance and is always engrafted upon an earlier renal affection. Lastly, there is the typical eclamptic form. At the present time we know little or nothing of the nature of the toxic substances which cause this morbid condition, nor do we know definitely their source. There is evidence which tends to show that the toxins are not derived wholly from the fetal structures and there is good reason to incriminate the maternal digestive system. Treatment of these cases is twofold: The immediate emptying of the uterus, and the freeing of the maternal system from toxic substances. The second method is one advocated by the author and, according to the statistics which he presents, gives much better results as respects the maternal and the infantile mortality. In this method the first requisite is to starve the patient and to give sufficient morphine to control the nervous phenomena. No less important is the promotion of the excretion of the toxic substances by frequent gastric and colonic lavage combined with free purgation and stimulation of the kidneys by means of saline hypodermoclysis and poultices to the lumbar region. If labor begins, reasonable measures should be taken to complete it promptly. After the period of starvation the diet should be scant and should be composed entirely of completely digestible substances. The tendency to pulmonary edema can be greatly reduced by keeping the patient on her side and heart weakness is best combated by the early use of stimulants.

LANCET.

May 22, 1915.

Infections of the Tonsils, by Frederick C. Pybus.—In the course of an extensive discussion of the various infections of the tonsils, Pybus cites statistics which show that ten per cent. of all school children in London were found to have tonsils sufficiently enlarged to demand surgical treatment. There is also a close relation existing between the number of carious teeth in children and the presence of enlargement of the tonsils. Thus, only forty-two per cent. of children free from carious teeth showed any enlargement of the tonsils, while this was present in sixty-seven per cent. of children with five or more carious teeth. Again, in children twelve years old nearly twenty-three per cent. more with enlarged tonsils had carious teeth than among those free from tonsillar enlargement. It has also been shown that tonsillar hypertrophy is materially reduced by the institution of proper oral hygiene. Enlarged tonsils may project beyond the pillars of the fauces to such an extent as to make their recognition certain and easy, but they may be equally enlarged and still not project. It should be a matter of routine when examining children, therefore, to make them gag in order to bring forward imbedded, enlarged tonsils. Some estimate of the degree of septic infection of the tonsils should be made in every case in which they are enlarged. This is best accomplished by examining the lacunæ with the aid of a bent probe. A series of tonsils which had been removed for hypertrophy were examined and sixty per cent. of them were found to be grossly infected.

Heart Perfusion with Excretory Toxins, by D. T. Barry.—Human urine and fecal extracts were diluted with Ringer's solution and perfused through

the hearts of frogs by Mines's method. The extracts were found to stop the ventricles in a few seconds in a state of tonus resembling that produced by digitalis. This effect could be removed by prompt perfusion with fresh Ringer's solution. There was no cessation of the auricle, but the impulses from it seemed to be blocked in their transit to the ventricles. A second perfusion with the fecal extract or urine weakened the ventricle, but did not produce any state of increased tonus, showing that there seemed to be a rapid development of tolerance to these poisons. The total effects of these toxic substances seemed to be, first, a stimulation of the inhibitor mechanism to the ventricles, the production of heart block, depression of the ventricular musculature, and depression of the cardiac accelerator mechanism. It is not known how far these results may be transferred to man, but it is known that the toxic substances present in the urine and feces are in all probability absorbed into the human circulation in excessive amounts under certain pathological conditions, and it is thought that their actions upon the perfused heart may explain some of the symptoms present in such cases.

Cerebrospinal Fever and the Sphenoidal Sinus, by Dennis Embleton and E. A. Peters.—Three post mortem examinations are reported in which injection of the sphenoidal mucous membrane was found, with closure of the ostia of the sinus, osteitis of the surrounding bone and the presence of many pus cells. The inner table of the skull over the sinus was congested, as was also the dura mater which was covered by thick purulent lymph. No inflammation was found in the other sinuses of the head or of the middle ear, and the cribiform plates were normal. It was thought that the infection of the meninges probably occurred by way of the sphenoidal sinus and to test this view of the mode of spread of the meningococcus two series of carriers were examined. In both acute and chronic carriers the mucosa of the nasopharynx was swollen, a condition favoring the closure of the ostia of the sphenoidal sinus. Finally a patient was treated during an attack of cerebrospinal meningitis by drainage of the sphenoidal sinus and made a prompt recovery. The typical occipital headache of this form of meningitis is also encountered in other types of infection in which there is an empyema of the sphenoidal sinus. It is suggested that the reason that many persons who harbor the meningococci in their throats and noses fail to develop the disease, is because their sphenoidal ostia are sufficiently patent to prevent the development of an empyema of this sinus.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

May 20, 1915.

Effect of Altitude on Blood Pressure, by F. C. Smith.—As to normal blood pressures, at the sea level and elsewhere, opinions differ. To the study of blood pressure in health the author contributes the readings made at Fort Stanton (altitude 6,230 feet) on fifty-four young adults, of whom seventeen were women. In the men the average systolic reading was 120 and the diastolic eighty-four, while in the women the figures were respectively 121 and eighty-two. He is inclined to believe that the effect

of altitude on normal blood pressure has been frequently overestimated and sometimes confounded with that of other influences. The effect of altitude on blood pressure in the tuberculous does not appear to be great, and, when due allowance is made for disturbing factors, there is nothing found in his observations to indicate that an altitude of 6,230 feet has any pronounced influence upon blood pressure in the ordinary case. As to the effect of tuberculosis itself on blood pressure, authorities seem to be agreed that hypotension always prevails in uncomplicated active disease. It seems extremely doubtful whether moderate altitude has any marked effect on blood pressure in the tuberculous except possibly in those whose circulatory apparatus is unable to accommodate itself to the increased strain thus put on it by adverse influence. Sufficient data are not yet available to determine which is cause and which effect in this phenomenon.

Syphilis of the Stomach, by W. A. Downes and L. T. Le Wald.—Syphilis appears in the stomach, as a late manifestation of the disease, in both congenital and acquired types. Diffuse syphilitic gastritis has been described, and in such cases histological examination has shown the changes of generalized gummatous infiltration of the submucosa. In the great majority of instances, the disease appears in the form of localized gummas, either single or multiple. The lesions may be situated in any part of the stomach, but seem to occur most frequently in the pars pylorica; involving either the lesser or greater curvatures, or both. Syphilis of the stomach occurs much more frequently than was formerly supposed. The Wassermann reaction and Röntgen examination have provided the data necessary to establish the diagnosis. These diagnostic aids should be resorted to in every case of disease of the stomach. If the diagnosis is made reasonably early, antisyphilitic treatment should control the symptoms; if not made until late in the disease, surgical intervention may become necessary to relieve complications.

Open Treatment of Infected Wounds, by F. G. Dyas.—The excellent results of the open air method in the treatment of burns and surgical tuberculosis led the author to undertake the treatment of old suppurating wounds in the same manner. This has now been done in several cases at the Cook County Hospital, Chicago, with the most gratifying results. The patient is put to bed, and if the affected area is on the lower extremity, as so frequently occurs in the form of foul varicose ulcers, a cradle is placed over the limb, with a piece of mosquito netting thrown across it, to prevent contamination by flies or bits of dried tissue flying in the air. In some instances the author has endeavored to hasten the healing process by means of the current of air from an electric fan. The rapidity with which the discharge diminishes and the odor disappears is remarkable. The tissues on the old ulcer become quickly dehydrated, and in many cases mummified, taking on the appearance and consistence of the bark of a tree. At first the patients resent the fact that no dressings are put on the affected area, and complain that nothing is being done for them; but after two or three days, when they can observe the rapid improvement for themselves, they express

their delight at not having to undergo painful dressings and the discomfort caused by pus soaked bandages. The treatment of suppurating areas by voluminous dressings, although these may be sterile or antiseptic, macerates and devitalizes the tissues, fosters the development of pathogenic organisms, and does not assist in the repair of tissue. It is always of advantage, when possible, to convert a moist into a dry type of gangrene; therefore the desiccating influence on the wound of the atmospheric air, in the absence of moist coverings of any sort, tends to attenuate infecting organisms. The method is safe, economical, and in keeping with Nature's processes as observed in the lower animals. The patient's period of convalescence is shortened, and he suffers absolutely no pain. In Dyas's experience, the danger of contamination from the atmospheric air is negligible.

MEDICAL RECORD.

May 29, 1915.

The Cure of Goitre by the Injection of Boiling Water into the Substance of the Enlarged Thyroid, by J. A. Wyeth.—The skin and the area injected are anesthetized by means of novocaine solution, one half of one per cent. A steel syringe is filled with boiling water from a cauldron, and the water immediately injected by inserting the needle well into the substance of the mass. To prevent scalding of the skin, the contiguous surfaces are shielded by a covering of towels, only the point of injection being left exposed. As the steam or water is apt to escape from the needle, a gauze swab is held as a shield in front of the needle, which is thrust through and into skin when the contact is made. From ten to twenty minims are forced out in one spot; after which the needle is partially withdrawn, the point carried to a new field, and the injection repeated. Three or four such areas may be injected at one sitting; injections are repeated as required, at intervals of one or two weeks, until the tumor disappears. In a case cited five injections were made in ten weeks, and in three months the goitre had entirely disappeared. Important vessels and nerves, as well as the trachea, should, of course, be avoided, and it is advisable not to point the needle immediately under the skin, as the excessive heat so directly applied may produce necrosis. A Bunsen burner or alcohol lamp held under the barrel of the syringe just as the needle is being inserted will insure the high temperature required. This method has been used successfully by Wyeth in a large number of angiomas during the past fifteen years.

Acid Crises, by W. F. Dutton.—Acid sweats and changes in the constituents of the saliva, gastric juice, and urine are conditions met with in certain diseased conditions. On the basis of these considerations the author presents one phase of the subject which he terms acid crises. His study embraces some forty-two cases met with in the last few years, and four of these are reported. First cases are apt to be rather puzzling; nephritic, gastric, ureteral, and urethral crises, twisted mesentery, appendicitis, and ureteral stone are likely to be confounded with this syndrome. A thorough application of differential diagnosis is essential, but after

a few of these cases have been studied the diagnosis is comparatively easy. The attacks are due to the irritant, and not to any disease of the organ affected, and in them the intense excretion and secretion of acid products reaches a high point. The cases are met with chiefly in those of rheumatic, lithemic, or uremic diathesis, and persons who eat large quantities of meat or candy and take but little liquid are specially prone to acid crises. This disorder of metabolism is associated with retention of uric acid and other purin bodies in the system, is characterized clinically by attacks of spasm of the renal pelvis, ureters, urethra, and bladder, and is due to irritation by a highly acid urine. In the treatment the first essential is proper regimen. Milk, eggs, fat, and carbohydrates are to be given in limited amounts, and a vegetable diet encouraged. Tea, coffee, lemonade, and light wines may be allowed in moderate amounts, but the most important beverage is water, which should be taken on an empty stomach and in large quantities. Fruits are salutary, and to be highly commended. An open air life, with plenty of active exercise, is imperative, and in advanced cases baths such as those to be had at various spas in this country and Europe may be taken with advantage. The administration of alkalis is an efficient adjunct, and their value is enhanced by the use of suitable mineral waters. A brisk calomel, soda, and podophyllin purge is advisable at the onset; later, wine of colchicum, combined with potassium citrate or lithium carbonate, may be given. Aspirin, sodium bicarbonate, or piperazin will aid in the solution of uric acid. The severe paroxysms must often be controlled by large doses of morphine. The acid crisis itself should always be the main object in our therapeutic efforts, and beyond this we may be guided by general principles.

Humanized Milk in Infant Feeding, by J. Epstein.—Humanized milk—that is, cow's milk with the percentage composition of human milk—may be given advantageously to all healthy infants deprived of breast nursing; the method of its preparation has been much simplified. The upper fifteen ounces of a quart bottle of milk, after standing undisturbed for six hours at a temperature of from 40° to 50° F., has approximately the following percentage composition: Protein, 3.40; sugar, 4.50; fat, 8.00; salts, 0.70; water, 83.40. When this is diluted with an equal volume of water, and sufficient sugar is added to make the sugar content 7 per cent., its composition is as follows: Protein, 1.70; sugar, 7.00; fat, 4.00; salts, 0.35; water, 86.95. A food is thus obtained which is very near to human milk.

ANNALS OF OPHTHALMOLOGY.

April, 1915.

The Question of Spontaneous Sympathizing Inflammation, by J. Meller.—In three cases reported the eyes were lost by iridocyclitis; the histological findings resembled somewhat those of sympathetic ophthalmia. The writer tries to establish that in these cases sympathetic disease was caused endogenously without any wound of the other eye. He acknowledges that it is not possible to establish this identity by clinical and histopathological ob-

servation, but thinks that when one eye has been lost through an iridocyclitis, due say to a nonperforating sarcoma of the choroid, and the other eye is subsequently lost through an iridocyclitis with changes similar to those seen in sympathetic inflammation, the second eye may have been lost through sympathetic trouble. One of the cases resembled very closely a bad attack of rheumatic iridocyclitis in which both eyes were attacked one after the other at an interval of two weeks, and he protests against the prevalent too free diagnosis of tuberculosis as the etiological factor in such cases. The writer does not demonstrate the correctness of his idea that sympathetic inflammation may attack an eye in the absence of traumatism to the other, but he furnishes food for thought.

Fifteen Hundred Cases of Errors of Refraction; Analysis of the Symptoms, by John R. Newcomb.—These findings can hardly be summarized briefly. The writer believes that the chart showing refractive errors would be greatly modified within one generation if we were able to give children's eyes a fair chance. Our educational system in this country is largely at fault. No child should be permitted to enter the public schools until he is eight years of age. He believes that great harm is done to the eyes during the sixth and seventh years, the first two years in school. Medical inspection of school children has accomplished vast good; there should also be instituted in each city a corps of ophthalmologists to inspect the eyes of all children; not a casual test chart examination, for normal visual acuity in a child means nothing, but there should be a careful consideration of each child's case, made possible by observations recorded on special blanks by the teacher. A record of a child's deportment, mental, physical, and nervous, is of far more diagnostic value than the usual test chart measurement.

Proceedings of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

Regular Meeting Held at the New York Academy of Medicine, Tuesday, April 6, 1915, at 8.15 P. M.

Dr. WILLIAM LESZYNSKY, in the Chair.

Tuberculous Meningoependymitis with Dilatation of Cavum septi pellucidi (Fifth Ventricle).—Dr. FREDERICK TILNEY presented this case. The patient, a fifteen months' infant, had a perfectly characteristic tuberculous meningitis. An interesting fact in the case, however, was that the child suffered from right hemiplegia for three weeks before death. This warranted the belief that there was some degeneration of the Wallerian type, but no evidence was found of secondary degeneration in the motor area. The pathology of the condition showed a typical state of basal meningitis with miliary tubercles. The septum lucidum was filled with thick gelatinous substance. There was a sinistral version. The brain itself presented no changes, except in the region of the ventricles, where there was tubercle formation giving characteristic tuberculous ependymitis. The space was thickened between the

two layers of the septum which was a dilated sac, containing a gelatinous mass. There were also small hemorrhages in the folia of the right cerebellum. Dilatation of the foramina on both sides was noticeable in the specimen, as well as that of the lateral ventricles and interior walls. The sinistral version depended upon which of the nerves was most involved. As to the formation of gelatinous material in the fifth ventricle, there was, under normal conditions, a little fluid, and therefore this fluid was an exudate from the inflammatory process into the septum. The child had died the previous December and the specimen dated from that time.

Tumor of the Right Occipital Lobe.—Dr. H. CLIMENKO presented the patient, a man, about sixty years of age, who complained of failing vision and headache. His father died of tumor of chest wall; four sisters and brother were living and well; no history of new growth or diabetes. He had been married thirty-nine years; six children were living and well; one child died at three years with abdominal colic; there had been one miscarriage. Gonorrhea and syphilis were denied; no smoking or drinking. The patient had diabetes for seven years; had passed small amounts of sugar, less than one per cent.; had polyuria and polydipsia; had lost weight and felt weak. Present illness began two and a half weeks before, when the patient found he was doing his work improperly and that he had failing eyesight and slight frontal headache, with dizziness. His vertigo increased so that he was forced to give up work; he had difficulty in getting home, a distance of eight blocks, walking into many people on the way. One week previously, while reading, he saw many colored animals and objects before his eyes, when the headache became more severe. He had hallucinations of myriads of rapidly moving objects and various colors. The vision was hazy. Since then the acuity of vision had been shown to have diminished. Headaches had become more severe and generalized, with increase of vertigo, coming on in sudden attacks. The previous day, vertigo had been severe enough to make the patient fall. The falling was not to any particular side, nor did objects rotate in any particular direction. For the past six days he had been vomiting several times daily, the vomiting recurring with increase in headache. It was not projectile. When the headache became throbbing in character, loud splitting sounds were heard, like the strokes of a hammer on an anvil. There had been no change in smell or taste; no impairment of muscular power; no sensory symptoms other than the optic and auditory ones. The physical examination showed as to gait, no cerebellar tilt to head; no abnormality of gait or falling in either direction; as to station, no Romberg; no ataxia; in the scalp, there was no bony tenderness; at outer angle of the right eye there was an ecchymotic spot, the result of fall; the pupils were equal and reacted to light and accommodation and there was Wernicke's reaction to left; both halves of each retina were sensitive to a beam of light, causing contraction of pupil at the right lower portion of the iris; the conjunctiva was moderately congested; no nystagmus; there was a left homonymous hemianopsia, a bilateral choked disc, and the veins were markedly distended. The lungs

were negative, except for occasional rales at the bases; the heart was somewhat slow. There was a Corrigan pulse and some capillary sclerosis. The abdominal reflexes were diminished on the left side; the cremasteric reflex was present and active. As to the extremities, there was no diminution of muscular power on either side; no atrophy; the descent of the right arm was more rapid than of the left; no ataxia; no astereognosis; no change in pain or pressure, but faulty localization of position of left arm; the patient overpointed with the right hand in trying to find the left, but did not overpoint with left in trying to find the right; he could not mimic position of fingers of left hand with right, but could mimic positions of right hand with left; there was slight hypotonia of left lower extremity; the descent of the left was more rapid than that of right. There was no fault in localization; knee jerk was diminished, but was obtainable and equal on both sides; Achilles jerk was present; blood pressure, systolic 160, diastolic 60. On February 16th, the visual fields showed, left homonymous hemianopsia, quadrantic, about three eighths of left halves of fields involved, entire upper quadrant and upper part of lower quadrant. Lumbar puncture showed initial pressure of 330 mm.; five c. c. of yellow fluid were removed. Exploratory craniotomy by Doctor Elsberg over the occipitoparietal region found no increased tension nor tumor. The x ray was negative; the Wassermann was negative in both blood and spinal fluid.

Doctor ABRAHAMSON saw the patient when he entered Mount Sinai Hospital. At first there was a tendency toward quadrantic vision, but later the entire half field was disturbed. The question was, Were they dealing with an occipital lobe lesion or with deeper seated disease of the optic radiations? There was some disturbance of the deeper muscle sensibility. The man could not imitate very well. Localization was not very accurate. The lesion was probably deep seated and most likely parietal as well. The brain appeared normal. It was not always possible for the surgeon, by palpation, to determine whether there was not a soft glioma involving the deeper structures. Diabetes might cause retinitis and swelling and localized softening of the brain. The history, moreover, of rather a sudden onset indicated that there had at one time been a hemorrhage, which caused the exacerbation of the symptoms. The tumor was probably deep down, catching the fibres from the parietal lobes. It was more likely in the radiations than in the cuneus.

Doctor STRAUSS would like to call attention to two points. This man had an optic neuritis. Tumors in this region very often did not cause choked disc, although they were pretty large. A patient admitted to the service a week ago had come in stupor and so a satisfactory examination could not be made. The examination of the brain revealed a large glioma with hemorrhages occupying the left occipital lobe, closing up the posterior horn of the lateral ventricles, but not going back into the calcarine region. It involved the optic radiation. There was no optic neuritis in that patient.

Doctor DANA said that the case might give rise to some historical reminiscences on his part, as it was similar to the first case of operation for tumor

of the brain ever done in this country. It was some twenty-five years ago, when Doctor Seguin made a diagnosis of occipital lobe tumor; Doctor Weir did the operation and found an encapsulated tumor, hard, and rather easily removed. The patient died. Doctor Dana thought, as did others, that the present case was an infiltrating glioma. One saw a good many cases with similar group of symptoms, due to thrombosis and softening, but the distinction from tumor could easily be made.

Doctor LESZYNSKY thought they must agree that this was a gliomatous infiltration, but not necessarily in the occipital lobe. In regard to the symptomatology of occipital lobe tumors, there might be very few symptoms. An intelligent woman of forty-four years gave a history of several months' severe headache, with occasional vomiting and disturbance of vision. The headache increased. Examination showed very slight optic neuritis, distinct homonymous hemianopsia, and vision 20/30 in each eye. No positive localization could be made at the first examination. Two and a half years before she had fallen and struck her head over the occipital region, but there were no immediate symptoms. Several months later, Doctor Cushing found the symptoms had progressed, but very few sensory symptoms were present. He did a decompression, and a few weeks later removed a very large endothelioma, originating in the tentorium and involving the medial surface of the right occipital lobe. Later there was a recurrence.

Unusual Case of Multiple Sclerosis.—Dr. S. P. GOODHART showed a patient, and said the case was interesting in that the symptomatology suggested differential diagnosis between disseminated sclerosis, paralysis agitans, and lenticular degeneration of the Wilson type. The history of the case was as follows: The patient, a Russian Jewess, aged twenty-nine years, gave a negative family history, except that the father and mother were first cousins; previous to present illness her history was negative; initial symptoms occurred in her thirteenth year; there was a fine tremor of the right arm upon voluntary movement; the left arm became similarly affected a year later; headaches and pains along the spine followed in the next few years; larger excursion movements of the intention type developed later; at fifteen years, with subjective sensations of weakness, there appeared flaccid paralysis of the left leg, followed a year later by the right. Tremor of the upper extremities then became more aggravated; fine tremor, of the Parkinson type, both in tempo and in character, as seen in paralysis agitans, appeared about five years ago; spasticity of both lower limbs developed gradually within the next few years, and the same phenomenon, together with marked contractures of the upper limbs, appeared somewhat later. The extreme contractures, as seen in the fingers, with the adducted and extended thumb lying flat on the palm, and the proximal phalanges of the fingers somewhat flexed, the distal phalanges extended, together with the fine tremor with the extremity quiescent, strongly suggested the paralysis agitans position. Paroxysms of dysphagia began at the age of twenty-six years, and these attacks became so severe that when fluid was taken it would

pass through the pharynx into the nose; at various times there were severe attacks of dysphagia. Speech within the last few years had become slow and measured; the voice had deepened in timbre and had a suggestive monotone; it was entirely lacking in rhythm; the facies had gradually assumed the present form; the expression was of the masked type, due in part to the spasticity of the facial muscles; forced laughter was occasional and the mouth was at times held with the lips widely separated and the jaws apart; this position and the expression were suggestive of Wilson's disease, as seen in one case. On attempts at speech, there was sometimes an involuntary effect of smiling, due probably to the automatic action of the muscles involved in this expression; on slight innervation there was a rhythmical tremor of the tongue and lips, and at times, on first attempts at speech, there was a slight and occasionally an extensive tremor of the body and of the arms; on voluntary movement the tremor of the upper extremities became distinctly of the intention type; on intense emotion movements became widely extensive and irregular; there were marked flexor contractures of both upper and lower extremities. While the position of both hands and fingers was quite typical of advanced paralysis agitans, the contractures were more pronounced than were found in that disease. There was nystagmus in extreme lateral position of the eyeball, varying from rotary to lateral oscillation. The position of the trunk, head, general carriage, expression of face in repose, and tone of voice were suggestive of Parkinson's disease; on active innervation of the facial muscles, however, the expression changed to that suggestive of the euphoria not uncommon in multiple sclerosis. The abdominal reflexes were occasionally present on the right side; very indistinctly elicited on the left; in spite of the contractures in the upper extremities, the reflexes were not decidedly increased; Babinski and clonus and markedly increased knee jerks were present, especially on the right side; in passive movements of the arm, the rigidities showed a tendency to cogwheel interruption, far less marked, however, than in Parkinson's disease. In differential diagnosis, as symptoms of multiple sclerosis there were: Age and manner of inception; intention tremor; variable abdominal reflexes; slow speech; emotional symptoms; evidence of pyramidal tract involvement and nystagmus. As evidence of paralysis agitans, there were: Tremor while at rest; contractures, though extreme and far more than usually seen in this disease; posture and gait; the entire body moving *in toto*; tendency to retropulsion and propulsion; voice and facies distinctive. Suggesting lenticular degeneration, there were: Occasionally widely opened mouth; contractures; excursive movements; no emaciation and no mental deterioration. Suggestive of chronic cerebellar tremor, while there was a somewhat characteristic tremor, there was no hypotonia, and the presence of so many other symptoms excluded this as a diagnosis. This case emphasized what all now believed, that the pathology of all the conditions above mentioned was doubtless to be found in the midbrain and its connections. The nomenclature required a change, since what they had hitherto regarded as disease en-

tities, were really symptom complexes and all part of the same pathological process. The cerebellum, the lenticular and caudate nuclei, the paths to and from the rami were the principal seats involved.

Doctor ABRAHAMSON said the patient had been under his observation for years at the Montefiore Home. Hers was almost an exact counterpart of another case, that of W. H., who had been in the home for many years, and whose brain and cord were being studied by Dr. J. R. Hunt and Doctor Dunlap. The latter was described about eighteen years ago by Dr. B. Sachs under the title of multiple sclerosis and paralysis agitans in a boy. The advance reports of the findings were negative in character. The girl and the young man both showed signs of paralysis agitans, of multiple sclerosis, and of Wilson's disease. It was not Wilson's disease, because that was an extrapyramidal affection: this was a distinctly pyramidal tract disease; other features negatived Wilson's disease; as for multiple sclerosis, the pathological findings in the young man showed no traces of it. It resembled mostly a paralysis agitans, and very likely the finer microscopical examinations would bear this out. Italian investigators sought to include the juvenile cases of Parkinson's disease with the cerebral diplegia. The crossed legged progression, bilateral pyramidal tract involvement, etc., in both of these cases, did certainly resemble the clinical group of Little. At present one ought to be content with a regional localization (leaving the nature of the process to be determined in the future), i. e., a diffuse degenerative disease of the basal ganglia and midbrain.

Doctor DANA said that the autopsy showed that in the case of W. H. that there was no degeneration of the pyramidal tracts. He thought that neurologists would have to follow the alienists for a time and use the term "allied to" in their diagnosis of these cases. The case shown here, as well as that of W. H. and some so called cases of Wilson's disease, were in the group "allied to" paralysis agitans. Clinically they most resembled this disease, and anatomically the lesions were in the same regions. He was not so sure that the lenticular nucleus degenerations in Wilson's disease were important as the cause of the specific symptoms. The lenticular nuclei could probably be badly softened, as in gas poisoning, and the patient get well.

Doctor STRAUSS asked Doctor Dana about lenticular softening in gas poisoning. What symptoms would he ascribe to lenticular softening? Cases he had seen of gas poisoning with lenticular involvement had come to autopsy. The sufferers had never come out of coma.

Doctor DANA replied that his views as to the symptoms of acute lenticular poisoning were based on certain clinical cases, and the fact that in prolonged gas poisoning there was almost always a softening of the lenticular nuclei. The cases he had seen had shown on return to consciousness, mental confusion and excitement, and later motor disturbances, very much like those seen in paralysis agitans and the Wilson disease. In regard to this latter disease, he thought that perhaps too much emphasis had been placed upon the importance of the lenticular lesions. In the acute gas cases there was com-

plete recovery with probably distinct scars in each lenticular nucleus.

Doctor GOODHART thought there need not be symptoms with softening of the lenticular nuclei. One case that came to autopsy had no symptoms. He thought only extensive degeneration, involving the tracts passing through, would show symptoms.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

The Pharmacy Handbook. By F. W. CROSSLEY-HOLLAND, F. C. S., Pharmacist. Member of the Pharmaceutical Society of Great Britain, Member of the American Pharmaceutical Association, Membre de la Société Chimique de France, Fellow of the Chemical Society of London, Associate Editor of The Prescriber. London: Henry Frowde and Hodder & Stoughton, 1914. Pp. 224. (Price \$2.)

There is much of practical value in these pages, but frankly we are not able to trace the author's steps on the ground which he has elected to survey. Is it pharmacy he gives us, or as he vaguely tells us, "information upon matters which come within the purview of the practising pharmacist"? If, according to this definition, we proceed to be informed, we find that his matter is as loose as his definitions. For example, on page 99, we read, "vaccines are emulsions of killed microorganisms," and on page 101, "hay fever vaccine is prepared from the pollen of grass (phleum pratense)." These examples illustrate a common fault of careless writers who forget to include in a definition of a class all the members of that class. On the other hand, there are portions of the book that reach a very creditable standard of conciseness. The chapter on the pharmacist's library is as useful as any we have read. The book strangely mixes different sciences. We have a chapter on alimentaria and one on anesthetics, which are not easy to follow, nor is it very clear how they come "within the purview of the practising pharmacist." In short, the author has produced a book of easy reference, but in another edition he should be careful to define his terms.

Medical Ethnology. By CHARLES E. WOODRUFF, A. M., M. D., Author of *The Effects of Tropical Light on White Men, and Expansion of Races*; Associate Editor of *American Medicine*; etc. New York: Rebman Company, 1915. Pp. xi-321.

Since the discovery of the role of living microorganisms in the production of diseases and death, we have been so completely overwhelmed by the importance of these invisible enemies that we have largely neglected some other elements of our surroundings so far as their effect upon our welfare is concerned. This timely volume by Woodruff dwells upon at least two of these other factors—light and heat—and forcibly brings to our attention the enormous importance of radiant energy in influencing the health of the human race. The first chapters deal with the evolution of men and the racial physical characters of both man and animals, laying special emphasis upon the development of the respiratory passages and the degree of pigmentation. These are followed by several chapters in which the properties of ether waves are discussed, with particular attention to the actinic and the light waves. The effects of these two types of rays upon living tissues are then set forth. From these introductory remarks, which occupy about a third of the book, the author proceeds to a careful and comprehensive analysis of the baneful influence of both forms of energy upon the human race. He shows that in the entire history of the world the efforts of the blond men of the north to establish permanent residence in regions of greater light and heat to the south of them have always met with ultimate failure on account of their inability to withstand the harmful influences of light and heat through their inadequate pigmentation. There is a

slow or rapid extinction of migrants whenever they have wandered into regions, the light and heat of which were markedly different from those in the region of their evolution. Even at the present day, the death rate is found to be greatest in civilized communities among those races which are not adapted by pigmentation to the climate, although modern preventive methods have kept the increased mortality considerably below what it would have been without their aid. Woodruff shows that even in spite of our increased ability successfully to combat disease, we are not yet in a position to withstand the ultimate destructive effects of living in regions to which we are not racially adapted. So marked and rapid is the degradation of the white race when far removed from its natural zone, that deterioration in white adults is evident in the tropics in as little as two years, being more rapid in blonds than in brunettes. Even here in the United States we are almost all living in a zone too far south for our pigmentation, and it is notable that our death rate is consistently higher than among similar people living in England, Norway, and Sweden, from which regions our race sprang. There are many other interesting questions of prime importance to the welfare of the race as a whole considered in Woodruff's book, but space forbids their mention. The author draws certain practical conclusions from his studies, but they have to do mainly with measures which will enable us to preserve the health of our race in the tropics and subtropical regions, and it is much to be regretted that he has not made any to aid us in combating the powerful but insidious degenerating influences under which we are now living in the United States, according to his well supported contention. The picture which he draws of the decadence which is going on among us at the present time, is vivid enough to depress the most staunch of heart, but he has lifted the load for us by the remark that centuries must yet elapse before any serious degradation of the race becomes manifest. The volume makes most fascinating reading, both on account of its easy style and because of the deep human interest that the subject holds. It is to be hoped that it will find many physicians who are foresighted enough to make practical application of the facts recorded, for it can be only through a slow process of education that we can combat the dangers of living beyond our natural zone as we now do and must continue to do.

Interclinical Notes.

There is a lively argument in the *Outlook* for June 2d between the counsel for the retail drygoods association in this city and Josephine Goldmark, of the National Consumers' League, as to whether or no welfare work has been of real value to the saleswomen in the large department stores. The discussion is of interest to physicians, as it is concerned with ventilation, sanitation, and drinking water among other things. Miss Goldmark's contention is that much of the installation is showy rather than useful, and that the proprietors of the big stores lay together too much stress upon such commonplaces as toilet rooms and elevators. Provisions which may be made, she says, for the comfort of employees, should not be allowed to hide or palliate the night work required and the inordinately low range of wages paid.

* * *

There is outspoken talk about venereal disease in the *Survey* for May 29th, in the course of which we learn with surprise and respect that the *Chicago Tribune* has been mentioning gonorrhea and syphilis by name in its editorial columns for more than four years. It is about time that some New York paper steadied its nerves a trifle.

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Anyone who has been unexpectedly attacked by a socialist, is aware that his arguments are not easy to answer offhand, while his platform is frequently most attractive on superficial examination. Our friends will find a strong and consistent socialist propaganda in *Pearson's Magazine*, agreeably diversified with fiction of the modern kind. In the June issue, for example, Dr. Frank Crane discourses on Land Currency, and Wilson Embry on Municipal Ownership, while the editor offers comments that are irresistibly funny where they are not shocking, on Congress and the Government generally. We find *Pearson's* most entertain-

ing reading and, we are not ashamed to say, extremely enlightening. An ingenious use of large type makes this magazine particularly useful to the busy man, by offering on the upper part of each page, a compact summary of the most important articles.

* * *

Of all the recent detectives of fiction, we think the only one who deserves to rank with the grandfather of them all is Philo Gubb, the graduate of the correspondence school of detecting, whose adventures Ellis Parker Butler details monthly in the *Red Book*. Gubb is not only funny beyond imagining, but he stumbles over some remarkable solutions. His disguises surpass those of M. Lecoq. In the June *Red Book* is the solution of the mystery of Empty Pockets, on which Mr. Gubb was not engaged; we think it would have baffled even that genius. Mr. Rupert Hughes contrived a most ingenious plot. We see that other critics have been reminded by this story of Dickens; we are very glad we noted the resemblance first. No less an artist than Mrs. Humphry Ward has a serial now in the *Red Book*, viz., *A Great Success*, concerning which we hasten to make the obvious remark that it will be.

* * *

Artificial Parthenogenesis of the Egg is the title of Dr. J. F. McClendon's article in the *Popular Science Monthly* for June. This number of the entertaining scientific publication is particularly rich in articles akin to medical affairs; e. g., *The Celibate Woman of Today*, by Dr. Earl Barnes; *Science and Industry*, by Dr. C. W. Super; *The Antecedents of the Study of Character and Temperament*, by Professor Joseph Jastrow; etc. There are editorial comments on the Thomas W. Evans dental museum and institute in Philadelphia, housed in a most imposing building, and on the improvement of acoustical conditions, the latter based on the successful attempts to better the acoustics in the memorial chapel at Western Reserve University.

* * *

We have finally noted in literature (James Stephens, *Here Are Ladies*), as well as observed in the home or castle of a New York Englishman, the distressing custom of putting pieces of ice into a glass of lager beer. We feel that it is only the British who could fail so absolutely to comprehend German *Kultur*.

Meetings of Local Medical Societies.

- MONDAY, June 14th.—Society of Medical Jurisprudence, New York; Roswell Park Medical Club, Buffalo; Williamsburg Medical Society, Brooklyn; New Rochelle, N. Y., Medical Society.
- TUESDAY, June 15th.—Medical Society of the County of Kings; Binghamton Academy of Medicine; Syracuse Academy of Medicine; Ogdensburgh Medical Association; Oswego Academy of Medicine.
- WEDNESDAY, June 16th.—Medicolegal Society, New York; Buffalo Medical Club.
- THURSDAY, June 17th.—Auburn City Medical Society (annual); Geneva Medical Society; New York Celtic Medical Society.
- FRIDAY, June 18th.—New York Academy of Medicine (Section in Orthopedic Surgery).

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending June 2, 1915:

Banks, Charles E., Senior Surgeon. Granted one day's additional leave of absence, May 22, 1915. **Barnes**, Wyatt, Acting Assistant Surgeon. Granted three days' leave of absence from June 1, 1915. **Baughman**, D. S., Assistant Surgeon. Directed to attend the meeting of the National Association for the Study and Prevention of Tuberculosis at Seattle, Wash., June 14-16, 1915. **Billings**, W. C., Surgeon. Directed to represent the Service at the meeting of the American Society of Tropical Medicine at San Francisco, Cal., June 14-17.

1915. **Brooks**, S. D., Senior Surgeon. Granted ten days' leave of absence from June 21, 1915. **Cofer**, L. E., Assistant Surgeon General. Granted one day's leave of absence, June 1, 1915. **Cumming**, H. S., Surgeon. Directed to represent the Service at a meeting of the Oyster Growers' and Dealers' Association at Washington, D. C., June 15-16, 1915. **Fox**, Carroll, Surgeon. Directed to proceed to Baltimore, Md., to make a preliminary survey of mosquito breeding places in that city and vicinity, and to advise the city authorities in regard to the measures necessary to mosquito suppression. **Grubbs**, S. B., Surgeon. Relieved from duty at Louisville, Ky., and ordered to proceed via Washington, D. C., for conference, to Boston, Mass., to take charge of the quarantine station at that port. **Hurley**, J. R., Passed Assistant Surgeon. Directed to represent the Service at the meeting of the American Society of Tropical Medicine, at San Francisco, Cal., June 14-16, 1915; granted two days' leave of absence on account of sickness, May 19-20, 1915. **Korn**, W. A., Surgeon. Directed to represent the Service at the meeting of the American Society of Tropical Medicine at San Francisco, Cal., June 14-16, 1915. **Lumsden**, L. L., Surgeon. Detailed to attend the meeting of the Medical Society of the State of North Carolina, at Greensboro, June 15-17, 1915. **McCoy**, George W., Surgeon. Granted two months' leave of absence from June 26, 1915. **McMullen**, John, Surgeon. Directed to proceed to such mountain counties of West Virginia as may be necessary to select a site for the location of a trachoma hospital, and to supervise the establishment and maintenance of same. **Pierce**, C. C., Senior Surgeon. Directed to represent the Service at the meeting of the American Society of Tropical Medicine, at San Francisco, Cal., June 14-16, 1915. **Trask**, J. W., Assistant Surgeon General. Granted three days' leave of absence from May 27, 1915. **Woodward**, R. M., Surgeon. Directed to represent the Service at the meeting of the American Medical Association at San Francisco, Cal., June 21-25, 1915. **Young**, G. B., Surgeon. Leave of absence for two days from May 17, 1915, amended to read "two days' leave of absence on account of sickness."

Boards Convened.

Medical officers have been assigned to duty on Coast Guard retiring boards as follows: Baltimore, Md., Surgeon C. W. Vogel and Assistant Surgeon P. M. Stewart; Boston, Mass., Surgeon B. W. Brown and Acting Assistant Surgeon F. H. Cleaves; New York, N. Y., Senior Surgeon G. W. Stoner and Passed Assistant Surgeon C. P. Knight.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending June 5, 1915:

Smith, Allen M., Lieutenant Colonel, Medical Corps. Granted leave of absence from June 7 to August 1, 1915; ordered to sail for his station on August 5, 1915, instead of July 5, 1915, as heretofore ordered.

The following named medical officers are relieved from duty in the Philippine Department, to take effect on or about September 15, 1915, and will then proceed to the United States, and upon arrival report for further orders: Lieutenant Colonel Edward L. Munson, Medical Corps; Major Robert M. Thornburgh, Medical Corps; Major Edward R. Schreiner, Medical Corps; Captain Daniel P. Maguire, Medical Corps; Captain William H. Thearle, Medical Corps; Captain George M. Edwards, Medical Corps; Captain George B. Foster, Medical Corps; Captain Roy C. Heflebower, Medical Corps; Captain John S. Coulter, Medical Corps; Captain George B. Lake, Medical Corps; Captain Louis H. Hanson, Medical Corps; Captain Lloyd L. Smith, Medical Corps; Captain Paul W. Gibson, Medical Corps; Captain Frank N. Chilton, Medical Corps; Captain Ferdinand Schmitter, Medical Corps; Captain Edgar D. Craft, Medical Corps; Captain John J. Reddy, Medical Corps; Captain Edward C. Register, Medical Corps; Captain James L. Robinson, Medical Corps; Captain Francis K. Strong, Medical Corps; Captain Henry Beeuwkes, Medical Corps; First Lieutenant Fred. C. A. Kellam, Jr., Medical Corps; First Lieutenant Henry C. Bierbower, Medical Reserve Corps; First Lieutenant Edmund W. Bayley, Medical Reserve Corps.

Births, Marriages, and Deaths.

Born.

Witham.—In Portland, Me., on Saturday, May 15th, to Dr. and Mrs. W. H. Witham, a daughter.

Married.

Brewer—Underhill.—In Bath, N. Y., on Tuesday, June 8th, Dr. Isaac W. Brewer and Miss Charlotte Underhill. **Edsall—Kennedy.**—In Washington, D. C., on Wednesday, June 2d, Dr. David L. Edsall, of Boston, Mass., and Miss Elizabeth Pendleton Kennedy. **Gilbert—Southard.**—In Mount Holly, N. J., on Monday, May 24th, Dr. Leon H. Gilbert and Miss Ida M. Southard. **Heller—Engel.**—In New York, on Tuesday, June 1st, Dr. Isidor Heller and Miss Ida Engel. **Parizo—Lavallee.**—In Winoski, Vt., on Monday, May 24th, Dr. Harry Lester Parizo, of Waterville, Me., and Miss Florence Mae Lavallee. **Roskilly—Cummins.**—In Virginia, Minn., on Monday, May 17th, Dr. Gerald Roskilly, of Minneapolis, and Miss Ruby Cummins. **Sloane—McMillan.**—In Butte, Mont., on Thursday, May 20th, Dr. Leonard Octavius Sloane, of Juneau, Alaska, and Miss Alcinda Auten McMillan. **Smith—Dawson.**—In Boston, Mass., on Wednesday, May 12th, Dr. William French Smith, of Somerville, Mass., and Miss Margaret R. Dawson. **White—Tivnan.**—In Dorchester, Mass., on Tuesday, June 1st, Dr. Robert M. White and Miss Mary Tivnan. **Worthen—Paine.**—In Duluth, Minn., on Thursday, May 6th, Dr. Thatcher Washburn Worthen, of Hartford, Conn., and Miss Mary Welles Paine.

Died.

Carling.—In Battle Creek, Mich., on Sunday, May 30th, Dr. William M. Carling, aged forty-three years. **Carpenter.**—In Cincinnati, Ohio, on Sunday, May 23d, Dr. Julia Carpenter, aged seventy-five years. **Cole.**—In Newark, N. Y., on Monday, May 24th, Dr. D. deForest Cole, aged sixty years. **Collier.**—In Kingston, N. Y., on Sunday, May 23d, Dr. Philip Bronk Collier, aged seventy-one years. **Edie.**—In Everett, Wash., on Wednesday, May 26th, Dr. James Norton Edie, aged seventy-eight years. **Forman.**—In Louisville, Ky., on Monday, May 24th, Dr. William M. Forman, aged sixty-five years. **Gills.**—In Richmond, Va., on Saturday, May 22d, Dr. William J. Gills, of Farmville, Va., aged thirty-seven years. **Hamaker.**—In Muskegon, Mich., on Friday, May 21st, Dr. Edward McVickar Hamaker, aged twenty-five years. **Hutchings.**—In Woburn, Mass., on Monday, May 31st, Dr. George H. Hutchings, aged fifty-five years. **Jacob.**—In Scranton, Pa., on Monday, May 24th, Dr. James F. Jacob, aged forty-five years. **Jenkins.**—In Farmdale, Fla., on Saturday, May 22d, Dr. Eddie Wise Jenkins, aged fifty-nine years. **Joyce.**—In Salem, Mass., on Friday, May 28th, Dr. James H. Joyce, aged thirty-five years. **Keator.**—In Kingston, N. Y., on Tuesday, May 25th, Dr. Harvey C. Keator, aged fifty-five years. **Keeler.**—In Stroudsburg, Pa., on Monday, May 24th, Dr. W. A. T. Keeler, aged eighty-one years. **Landis.**—In Philadelphia, on Saturday, May 29th, Dr. John R. Landis, aged seventy-three years. **MacArthur.**—In Winnipeg, Canada, on Sunday, May 23d, Dr. James MacArthur, aged sixty years. **Mack.**—In Buffalo, N. Y., on Sunday, May 30th, Dr. John S. Mack, of Slatington, Pa., aged forty-two years. **Marshall.**—In Brooklyn, N. Y., on Monday, May 31st, Dr. John Franklin Marshall, aged fifty years. **Moore.**—In Philadelphia, on Friday, May 28th, Dr. Henry D. Moore, aged fifty years. **Robinson.**—In Monrovia, Cal., on Tuesday, May 25th, Dr. Frank Neall Robinson, aged forty-one years. **Robinson.**—In San Antonio, Texas, on Friday, May 21st, Dr. Reuben Robinson, formerly of Omaha, Neb., aged fifty-three years. **Rosenthal.**—In Berkeley, Cal., on Monday, May 24th, Dr. Charles Henry Rosenthal, aged fifty-eight years. **Saville.**—In Boston, Mass., on Thursday, May 27th, Dr. Sumner Carruth Saville, aged forty-eight years. **Townes.**—In Highlands, N. C., on Monday, May 24th, Dr. Henry H. Townes, aged forty-five years. **Walker.**—In Boston, Mass., on Tuesday, June 1st, Dr. Gustave F. Walker, aged seventy-two years. **Wetherby.**—In Wilkesbarre, Pa., on Saturday, May 29th, Dr. Benedict J. Wetherby, aged fifty-five years.

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Original Communications.

ALEXIA.

Report of a Case,

By S. P. GOODHART, M. D.,

New York,

Assistant Professor of Clinical Neurology, Columbia University;

AND H. CLIMENKO, M. D.,

New York,

Instructor in Neurology, Post-Graduate Hospital.

(From the Neurological Department of the Montefiore Home and Hospital.)

The general subject of aphasia is one of considerable neurological interest. The power of expressing language is limited to the highest form of animal development; it represents one of the last acquired and perhaps most intricate of the mental processes. In addition to its interest as a psychological study, an analysis of the special form of aphasia is important for diagnosis and localization. While the purely motor and sensory aphasias are not common, we usually find that in reality we are dealing with a paraphasia.

Alexia, pure and simple, is an inability to read, and may be a part of the disturbed function of ability to recognize pictures or drawings. The visual memory centre being probably in that part of the parietal lobe known as the angular gyrus, a lesion of this area in the left hemisphere, in right handed individuals, would be likely to cause alexia. A lesion of the association fibres between the cuneate lobule of the occipital lobe and the angular gyrus, would likewise cause alexia; associated with this, we should expect to find changes in the retinal field because of the proximity of the fibres of the optic radiation, as these fibres pass from the chiasm back to the occipital lobe. Because of the limited disturbance the most likely lesion, as probably exists in our case, is of a vascular nature; this frequently being part of a general arteriosclerotic process, other cerebral symptoms are likely to complicate the picture.

Pure alexias are not frequently observed, and in a fair number reported in the literature there are also present other forms of aphasic symptoms. The case observed by us represents perhaps as pure a form of alexia as one meets clinically and, because of the rarity of this expressive form of language defect, it merits record.

In the literature of the last few years, there are a number of cases of alexia. Dr. H. Levi reports a case of incomplete alexia with hemianopsia in a

boy of seventeen years, in whom the original lesion was due to a fracture at the base of the brain; this case was rather in the nature of an optical aphasia; however, the patient did not lose the ability to recognize letters—unlike our patient. Doctor Levi does not state whether other features of aphasia were present. In another case of alexia and hemianopsia reported by Doctor Casamajor and Doctor Karpas, the alexia feature was very marked; but their patient, a woman, had some difficulty in recognizing and naming objects; she could, however, read simple and complicated numbers; there was also some impairment of attention, showing a general mental involvement. Doctor Heiligttag's case is a fairly true one of pure alexia. Doctor Schuster records two cases; in one there was evidence of involvement of the pyramidal tracts and somatic lesions of the nervous system; in the second case there was agraphia and other forms of aphasic disturbances with evidence of psychic deterioration. Doctor Heilbronner reports a case, but here likewise there were evidences of generalized central nerve involvement expressed in the form of hemiplegia, intense emotionalism, etc. This case was fully studied from a psychological standpoint.

The following report is that of a case observed by us at the Montefiore Home and Hospital:

CASE. The patient, aged fifty-six years, was admitted to the Montefiore Home and Hospital, November 23, 1913. He was born in the United States of Irish parents. He had been in Bellevue Hospital with no intensity of symptoms for ten days in October, 1912. From there he was transferred to the Manhattan State Hospital, where he remained for about five weeks with a diagnosis of hemorrhage of the brain; during this time his condition improved considerably. Personal and family history was negative. He had an attack of acute articular rheumatism in 1907. His occupation was that of a laborer and he had been employed in a liquor house about seven years; but he alleged moderate indulgence in alcohol.

The initial symptoms of the present illness came on suddenly one day in October, 1913; they were vertigo and transient loss of consciousness. On the second day a similar seizure occurred, accompanied by paresthesia of the right upper and lower extremities. The dominant feature of the early history of this illness was defect of memory (especially in orientation) as to time and place and in regard to names, particularly proper nouns.

In February, 1913, it was observed that the names of objects that he was unable to recognize by sight, he was able to name if allowed to handle, and others again were perceived through the auditory sense. For example, he could not name "bell" when the object was seen, but named it at once upon hearing the familiar sound; "thimble" was named by means of the kinesthetic sense of touch and a ticking watch through audition. In the usual test of as-sorting colors, he showed a lack of discrimination of shades.

On his admission to Montefiore, the abdominal reflexes were present. The right cremasteric could not be elicited, though the left was present. Sensory touch, pain, and

temperature were intact, except that on the right perineal region there was at times inability to distinguish hot from cold and vice versa. Stereognostic sense was intact. Spontaneous speech was perfect. He showed one somatic symptom of importance, that of high arterial tension; systolic blood pressure was 190. Objective examination of the nervous system showed right hemianopsia; otherwise the nervous system was normal, except for absence of the right cremasteric reflex. Lumbar puncture gave normal fluid. Wassermann was negative.

There was loss of memory for words, proper names, and dates, purely as names, however, for he would often recollect the name by a roundabout process of reasoning; e. g., asked on December 31st what holiday occurred on the following day, he said: "It ain't no regular city holiday . . . it's the last day of the year. . . . New Year's!"

All errors in replies as to familiar locations of places and objects seemed to be due to lack of proper visual reconstruction; in other words, a sort of visual paramnesia. A word, or the name of an object, he was unsuccessful in giving through visual stimulus alone.

He was questioned as follows:

- Q. Name? A. (Correct.)
 Q. Address? A. I don't remember number of street; I lived in 193d Street. (Wrong.)
 Q. Age? A. Forty-three. (Wrong.)
 Q. Date of birth? A. I'm forty-four. (Wrong.) I don't remember day I was born on.
 Q. What is the present year? A. 1900. (Wrong.)
 Q. Day of week? A. Wednesday. (Correct.)
 Q. Yesterday? A. Tuesday.
 Q. Tomorrow? A. Thursday.
 Q. How many days in the week? A. Seven.
 Q. How many days in this month? A. Thirty-one.
 Q. What holiday is tomorrow? A. It ain't no regular city holiday . . . it's the last day of the year . . . New Year's!
 Q. What date of the year is today? A. I don't know.
 Q. Date of tomorrow? A. December 29, 1913.
 Q. What is tomorrow called? A. New Year's.
 Q. When does New Year's occur? A. First day of the year; in January.
 Q. How many months in the year? A. Twelve.
 Q. Name months of the year? A. (Correct.)
 Q. What place is this? A. A hospital for sick people.
 Q. What is the name? A. I don't just remember it.
 He was then asked the names of a number of people, but could repeat none of them, though they should all have been familiar to him.
 Q. Who is Dr. W—? (The medical director of the hospital.) A. I have heard somebody speak of him. (He had seen him and heard him addressed by name many times a day.)
 Q. Who is Dr. S—? (his resident attending physician). A. (Correct.)
 Q. What sect is this hospital? A. Nonsectarian.
 Q. How many meals have you a day? A. (Correct.)
 Q. Who is mayor of this city? A. There is a new mayor; I never bother with politics.
 Q. Who was the President of the United States? A. I do not know his name.
 Q. Who was Mr. McKinley? A. He was President. I don't know if he is alive or dead.
 Q. Who is Mr. Wilson? A. Present President.
 Q. How much does a suit of clothes cost you? A. \$4 or \$5 or \$16 or \$17.
 Q. What do your shoes cost? A. (Correct.)
 Q. What is this? (In turn showing key, nickel, quarter, cigarette box.) A. (All correct. He counted money correctly.)
 Q. Where do you live? A. Downtown in the seventh ward.
 Q. Where is Columbus Circle? A. I don't know.
 Q. Where does Central Park begin? A. Fifty-ninth Street.
 Q. Where does Central Park end? A. Tenth Street, no, 120th.
 Q. Where is St. Patrick's Cathedral? A. I don't know. (He is a Roman Catholic.)
 Q. Where is City Hall? A. I don't know.
 Q. Where is Brooklyn Bridge? A. Right near Central Park . . . no . . . the park you were just talking about.

Q. Where is Battery Park? A. (Correct.)

Q. Where is 643 East 138th Street? (His address.)

A. It's on the paper you have there. (Correct.)

These questions tend to establish the correctness of our view that there is in this case a paramnesia; e. g., the patient knows there is a park near the bridge mentioned, but he has confounded this small park with the large Central Park with which he is also familiar, Central Park being situated in a different part of the city. This form of memory confusion is seen throughout the aphasic state.

He repeated words fairly well, spelled correctly, but forgot words easily. When the word "box" was written

*as i was going down
toward sester day i met
an old friend with whom
i went to school
after speaking of old times
we were about to part
when i noticed that
he was lame asking
because he told me that
he was wounded that
a soldier in the spanish
war*

FIG. 1.—Patient's writing from dictation.

he called it "key." He explained: "I can't see letters right; they blur over and swim a little." When asked to take a pen to write, he held it for a while by the wrong end until his attention was indirectly drawn to it.

He wrote words correctly from dictation, but could not read them. He knew the difference between Hebrew and English letters. He did not recognize his own written letters; called g=c; n=o; r=c.

Q. (Showing a magazine, what is this? A. It's a thing to read stories out of; it comes monthly and weekly.

Q. (Showing written word "start"), what letters are in this word? A. p-a-r-a-k-pr . . .

Q. What letters are these? A.

N	S
O	S
W	R

The following letter was dictated and he was asked to write it:

As I was going downtown yesterday I met an old friend with whom I went to school. After speaking of old times, we were about to part when I noted that he was lame. Asking the cause, he told me that he was wounded while a soldier in the Spanish War.

The following is the patient's writing as dictated (Fig. 1):

As i was going down town sester day i met an old friend with whom i went to school

After speaking of old times we were about to part when i noticed that he was lame. Asking because he told me that he was wounded thil a soldier in the spanish war

He could not then read what he had written and did not remember anything he wrote.

He was told to write a letter of his own composition and wrote the following, but could not read it immediately after writing it (Fig. 2):

March th 22

Doc
Doctor

Please give me a pass to the home on a visit to see my ers as i would like to see them. i will come back soon i would like to see my small children as thereby cant come up to see me and as i long to see them i hope nou will let me go to see them to morrow if nou please and if not i will bes home in time hoping nou will do so i remain yours truly J. J. P. Doctor i am sorry i cant write any better hoping nou will excuse

The patient was given in one sentence the following consecutive orders: "Stand up, open the door, go to the desk, bring the pencil and sit down." Response of patient: "Went to the door, opened it—turned around and said he did not remember the rest.

Second order: "Stand up, go to the window, button your coat and sit down." Response was perfect.

He wrote from dictation, book, door, car, man, boy, girl. Asked to read the six words he had written, he said: "I can't get them; can see the letters but don't know what to call them."

He was asked to read the following written letters and did so as shown:

B?	Reply: A.
E?	B.
C?	C.
M?	D.
V?	E.

The following letters were named, not in order, and the patient was asked to point to them:

X?	X.
Y?	Y.
S?	S. (After being asked twice.)
T?	T.
V?	S. (Asked again, he answered correctly.)
O?	O.
R?	R.
K?	K.
L?	V. (Asked again, he answered correctly.)

Given a number of familiar objects such as a key, coins, and a knife, he was unable to name them.

Six words were dictated to him which he wrote correctly.

The words *man* and *sister* were written, among six others, they were pointed to and he was asked to name them. He named the former correctly, but hesitatingly, after mistaking it once. The latter he called *book*. Later, the word *sister* was pointed to and when asked what it was he answered correctly. When the examiner pointed to the wrong word in saying *man*, or *sister*, the patient told him he was incorrect.

A simple picture was shown to the patient, and he was able finally, with difficulty, to recognize some of the elements. A picture of a boy and a bird was shown to him;

Dear

Dear Sir

Please give some man

to the home on or visit

to day to see my car i

would like to see them

i will come from soon

i would like to see they

small children w. they

cant come up to see me and

in i long to see them

i hope you will let me

go to see them to morn

if you please and if not

it will be fine

in time hoping you

will do so i remain yours

Truly Yours

John P. Nelson

Doctor i am sorry

i cant write any better

hoping you will excuse

FIG. 2.—Letter of the patient's own composition.

he recognized it and said it was the picture of a man and a bird on a twig.

Q. Is this a man or a boy? A. Oh, a boy; I forgot.

He was shown a picture of a child sitting on a chair at a table on which a steaming bowl was placed, the child holding a spoon in its right hand. When asked to describe the picture, he said: "A boy; I cannot tell exactly by the clothes." Further questioning led to the following: "On the table stands something that they burn candles in."

Q. Do you mean a bowl? A. Yes, yes. They use it for

different purposes in the house . . . oh, yes; a child is sitting there. (Spontaneously.)

Q. What is the child holding? A. Something . . . I cannot see . . . I forget.

Q. Is it a spoon? A. Oh, yes, yes; a spoon.

The words *chud*, *spoon*, *table*, and *bowl* were written near the picture and the patient was asked to read them. Pointing to the word *child* he read *boys*; pointing to *bowl* he read *spoon*; then he corrected himself and pointed instead to the word *bowl*.

The picture of a hand was shown him, which he named correctly after a few seconds hesitation. The examiner pointed to the fingers and thumb and he named them correctly. Underneath the picture were written the words *hand*, *fingers*, *thumb*. The patient said he could not read them; then he said "grand stand." The examiner pointed to the word *hand*; patient read it correctly; to the word *fingers*; patient spelled "f-i-r-n-g"; to *thumb*; patient spelled "b-u-a-n-d."

After being examined for some time, the same picture of a hand was shown to him again and patient was asked what it was. He answered, "The shape of a man without clothes on."

Q. Is this a hand? A. Yes, this is a hand.

Q. What are these? (Pointing to fingers.) A. Fingers.

Q. Here are written three words. What word is hand? A. (Points correctly.)

Q. Which word is fingers? A. (Points correctly.)

Q. Thumb? A. (Points correctly.)

Q. (Writing 575), what is this? A. C E A.

Q. (Dictating), write 575. (Correct.)

Q. (Writing 620), what is this? A. 570.

Q. Write 620? A. (Correct.)

Q. Write 8? A. (Correct.)

Q. Write 5. A. (Correct.)

On June 10, 1914, the patient was again examined. He wrote spontaneously, with coordination and sense, but immediately forgot the context of what he had written, indicating an extension of the process of deterioration. When directed to write any word that occurred to him, though he spoke the word, in this instance, *Dear*, he spent some minutes in endeavoring to execute the capital *D*. He was then unable to recognize the letter that he had just written, i. e., the letter *D*. He was unable to read written sentences that he had just put on paper.

On June 26th, the patient was again examined. The examiner was recognized, but his name was not remembered; the name was, however, positively recognized when it was spoken, though the patient got it in a most round-about way.

The number 2 written by examiner was correctly read by patient; 6 written by examiner was called 2 by patient. Examiner remarked, "that is 6." Patient exclaimed, "Oh, yes; that is 6"; 9 written by examiner, called 7 by patient; 7 written by examiner, called 2 by patient. Patient wrote numbers from dictation, but could not read them correctly a few moments later (as was the case with letters). He drew simple pictures, such as a house, man's head, etc. In a few moments, however, he could not state what they represented.

Patient was unable to continue a word on the next line of a letter he wrote when the word had to be divided at the end of a line; e. g., when *go* was written on one line, *ing* could not be continued on the next, the momentary visual interruption being sufficient to cause amnesia; the patient was amnesic for the sentence he had written, including the syllable *go*. This amnesia seems to stand in relation to the alexia.

When objects were shown, e. g., a bottle, he could not give the name, but knew its use; however, he knew it was a bottle when told so. This was not true for all objects. He recalled the name of certain objects only after some mental effort. When letters were traced on the palm of either hand he recognized them, and on different parts of the body surface also.

The underlying pathological condition in this case is, of course, vascular disease. The loss of consciousness and the initial paresthesia of the right side showed involvement of the left motor subcortical area, though the disturbance was only slight and transitory, disappearing entirely and leaving as a

residual and permanent defect, a form of aphasia which we speak of as alexia.

However, this case illustrates the need of a different nomenclature from that used for many years. This case throughout, like others involving language defect, suggests more of the amnesia than the simple aphasic element. The term, aphasia, should really be restricted to purely motor speech defect, though the sensory form of aphasia should be regarded in the nature of amnesia. The striking feature of the case, as shown by our simple experiments, is that of a true amnesia, for there is really a loss in these cases of memory for forms; it is true that the loss involves forms of but one dimension especially, as we find, in writing and in pictures and drawings. In other words, the alexia is the dominating feature and a certain degree of psychic blindness is evident too, in that the patient was frequently unable to recognize objects by vision alone; when, however, the object could be brought to reproduction by other senses—by the kinesthetic sense, for example, recognition was possible.

So far as we can find, cases of agraphia true and simple do not exist. In fact, it is unlikely that there is a centre of coordination for specialized movements restricted to the function of writing; it seems probable that this is simply a part of the cortical area governing the various movements of the upper extremities in their associated activities. In the majority of cases, undoubtedly, the association tracts are affected rather than the centres themselves. The centres for language may be divided into the chirokinesthetic, or that area about the left frontal; the glossokinesthetic, or better, the glosso-labio-vocal kinesthetic centre, or the area about the ascending frontal convolution; the visual kinesthetic area, or that part of the cortex and subcortex in the angular and supramarginal gyri, and the audito-kinesthetic area on the surface of the first temporo-sphenoidal lobe; there are also the association paths carrying impulses between these centres. One can thus understand that in a lesion of any of the association paths, there would be a temporary disturbance affecting the expression of language in several forms, so that only later the distinctive character of the defect for diagnostic localization would be possible. Therefore, at the beginning of the early history of the case, the aphasia was more in the nature of a paraphasia.

It seems to us most unlikely that there is a centre which stores up only the pictures of letters and of figures. A true alexia should show likewise an inability to understand or furnish a mental interpretation of pictures and drawings; this is borne out by the fact that in our case the simple elements of pictures and drawings could not be visibly recognized as such, even immediately after the patient had drawn these objects on paper, as in the case of reading simple writing. It has even been maintained by some that there is a distinct centre for memory of figures, but there is nothing in this case or in others that we have been able to find to confirm this view. It is probable that in our case we are dealing with a small lesion in the immediate vicinity of the angular gyrus.

34 WEST EIGHTY-SEVENTH STREET.
252 EAST BROADWAY.

AN IMPROVED METHOD OF APPLYING THE BONE WEDGE GRAFT IN THE TREATMENT OF CLUB FOOT.

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Having applied the bone wedge graft in a number of instances after the technic advised by Albee, and experiencing some difficulty in fixing the graft securely in position with kangaroo suture, particularly in younger children, where on account of the bones not being completely ossified the sutures may pull through the cortex, I have adopted the fol-

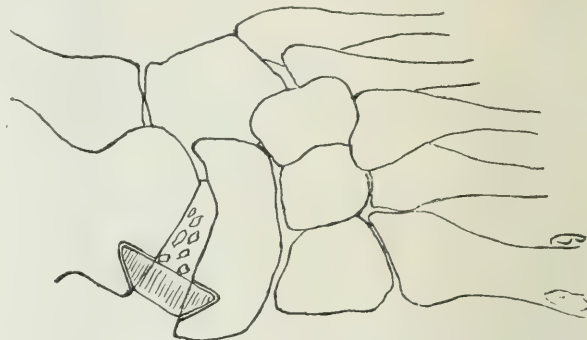


FIG. 1.—Illustrates the dovetailed mortised wedge graft in place, looking from above downward.

lowing technic which securely locks the wedge graft in position and renders any bone suture unnecessary.

This method was applied in the case of infantile club foot here illustrated, where the paralysis of the peroneal muscles resulted in this typical deformity of varus and loss of balance of the foot in weight bearing. This child, four years old, had an attack of infantile paralysis two years prior to the operation which was done on January 25, 1915.

The deformity at the time of operation was thoroughly overcorrected by manual stretching under anesthesia. A tourniquet was applied to the thigh in order to give a bloodless field. Instead of employing the U shaped incision on the internal aspect of

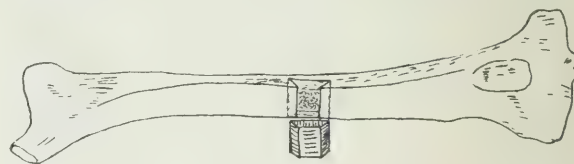


FIG. 2.—Diagram of tibia with the dovetailed mortised wedge graft removed.

the foot, as advised by Albee in these cases, I have found that a skin incision along the course of the anterior tibial tendon on the dorsum of the foot gives a better exposure of the astragaloscaphoid joint. This skin incision is about one and a half to two inches long, commencing just in front of the internal malleolus and continued beyond the tendon's insertion to give a free exposure of the astragaloscaphoid joint. The advantage of the linear over the lateral U shaped skin incision is best described as follows: With the U shaped incision the foot is forced well over into correction, and in many instances it is found difficult without excessive traction

on the skin flaps to make a satisfactory closure of the skin wound at the completion of the operation. With the linear skin incision the natural tendency, when forced abduction of the foot is made, is to

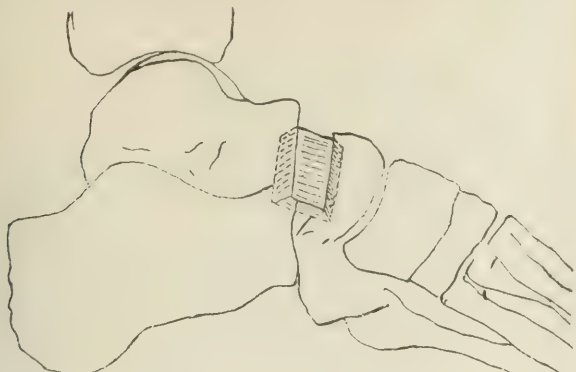


FIG. 3.—Diagram, side view, showing dovetailed mortised wedge graft in place, between the astragalus and scaphoid.

cause the skin edges to approximate and obviate any gaping of the wound to be filled in by granulation.

The joint surfaces being thus exposed from above, the articular cartilages on the ovoid head of the astragalus are removed with a double curved gouge, such as is used in mastoid work, thus preserving the contour of the head. The cartilage is also removed from the concave articulating surface of the scaphoid with the same instrument, thus removing as little bone as possible. With an osteotome or an acute angle chisel, such as is used by carvers, triangular segments of bone are removed from the head of the astragalus and from the corresponding opposite surface of the scaphoid to admit such a shaped segment of bone as is indicated in Fig. 1 and Fig. 3. This segment of bone is very easily and quickly secured with the small motor saw from the middle or lower third of the antero-internal surface of the tibia, as illustrated in Fig. 2. It is much easier to cut out a fragment of bone with the motor saw held at this angle than to saw out a rectangular block of bone. The block of

FIG. 4.—Illustrates a suitable case for the operations described in this article.

bone consists of the entire cortex of the tibia down to the marrow substance. The size of this block of bone is determined by measuring the width of the gap to be filled in between the separated astragalus and scaphoid. With the small motor saw four cuts are made in the tibia, two transversely of

the bone on its antero-internal surface (one obliquely downward and the other obliquely upward) and one on each side of the tibia entirely to free the graft. The wedge graft can now be slid out of the tibia readily, and after forcing the foot into its corrected

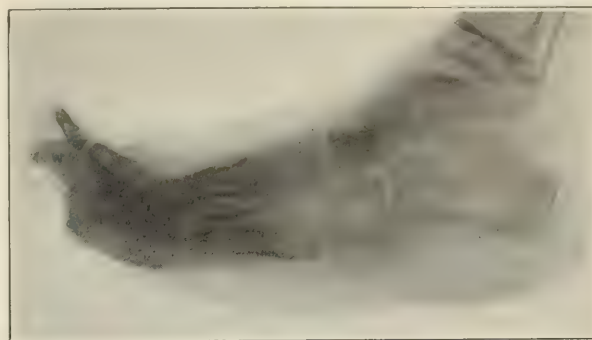


FIG. 5.—Bone graft wedge in position between astragalus and scaphoid; no bone atrophy nor absorption; firm union.

position, the graft can be slid into position from above downward. The fore foot then released fixes the graft securely in position without necessity of sutures. The skin wound is closed with continuous catgut suture, and the foot put up in a plaster of Paris cast.

In this particular case the loss of peroneal muscle power caused the outer border of the foot to drop. This was corrected by using the peroneal tendons for external supporting ligaments (Gallie). The external malleolus was freely exposed by a curved skin incision, similar to the skin incision for performing an astragalec-tomy, and the peroneal tendons were freed from their sheaths. A generous osteoperiosteal bone flap was turned backward on the outer surface of the external malleolus and the cancellous bone underlying grooved sufficiently to receive these peroneal tendons which were lifted into place, drawn taut, and a retention suture passed through the tendons and the periosteum above this periosteal bone flap. The tendons were scarified and sutured to their new position by two kangaroo tendon sutures and the bone flap was closed over and sutured securely. The skin wound was closed and the foot placed in an abducted position in a plaster of Paris dressing reaching above the flexed knee, in order to obviate any tendency to adduction of the foot in the plaster dressing. This cast is worn for eight weeks, when that portion enclosing the knee is removed and the remainder allowed to continue on for from two to four weeks longer.

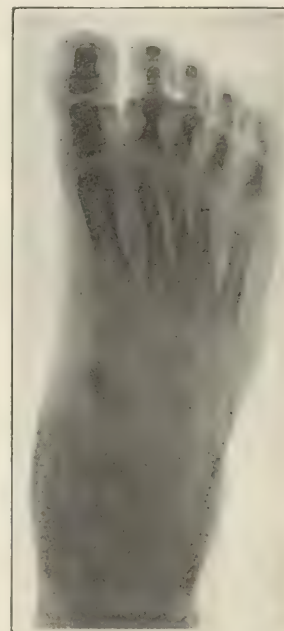


FIG. 6.—Same case; dorsoplantar view.

As the bone wedge graft has given good results when securely implanted by the former technic, it is reasonable to expect that the improvement herein described will add further good results and prevent possible slipping out or loosening of the graft from its bed.

ATROPHY OF THE SKIN ASSOCIATED WITH CUTANEOUS SYPHILIS.

With Report of a Case.

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(From the Department of Dermatology and Syphilology, College of Physicians and Surgeons, Columbia University.)

Broadly speaking, there are three well marked clinical types of atrophy of the skin: the linear, the macular, and the diffuse. The first is known under the name *striæ distensæ*—*vergetures* of the French. The second is called *atrophia maculosa cutis* or *dermatitis atrophicans maculosa*; and the third, *dermatitis atrophicans diffusa idiopathica*. All three types may be idiopathic in the sense that no microscopic or macroscopic pathological changes of a tangible character precede them. On the other hand, each type may be preceded by certain well defined pathological alterations in the affected integument—alterations which may be studied not only with the microscope, but which may also be evident to the naked eye.

Aside from the senile atrophies and the atrophies accompanying certain trophoneuroses, various chronic infectious diseases, such as tuberculosis, leprosy, and syphilis, are known at times to produce changes in the skin, resulting in various forms of cutaneous atrophy. These lesions may be macular and disseminated, or, more commonly, they resemble the ordinary *striæ distensæ* of pregnancy; presumably they are due to rapid acquisition or subsequent loss of fat in the integument. The *diffuse* form of cutaneous atrophy, however, is said to occur in the end stages of but one of the chronic infectious diseases above mentioned, namely, leprosy. Oppenheim has described such a diffuse form under the title, *dermatitis atrophicans leprosa*. Finger and Oppenheim, in their comprehensive work on the cutaneous atrophies, have nothing to say, in an affirmative sense, regarding a diffuse atrophoderma following syphilis.

MACULAR ATROPHY OF THE SKIN ASSOCIATED WITH SYPHILITIC INFECTION.

Occasionally, the end stages of certain syphilitic lesions of the skin are manifested by an atrophy of the affected areas of integument, independent of the loss or acquisition of adipose tissue. Such atrophic processes usually occur in the form of disseminated macular spots or patches, and have been described by Fournier, under the name *leucatrophies cutanées*. They must, of course, not be confounded with the ordinary depressed scars following healed syphilitic lesions, either of the secondary, far more commonly of the tertiary stage of the disease. These glazed, pigmented, scalloped, and ir-

regularly outlined, yellowish white scars are familiar to everyone; they are seen almost exclusively in patients in whom antisyphilitic treatment has been neglected. The true atrophic macules, on the other hand, are sharply margined, discoid or oval in shape, level with, or a little raised above the surrounding integument; their surface is pigment free, whitish in color, glistening, somewhat wrinkled in appearance, like wrinkled cigarette paper; to the touch, the surface is smooth and velvety; the palpating finger has the impression of sinking into a hole in the skin (as in the early lesions of *molluscum fibrosum*); the skin may be folded and lifted with ease, on account of its looseness. In short, they present the clinical appearance termed *anétodermie* (flaccidity) by Jadassohn. This *anétodermie* is due primarily to the absence of elastic tissue in the affected areas of integument.

Atrophic areas of this kind may occur, not alone in the sites of healed syphilitic lesions, but also independently of previously existing luetic efflorescences in the syphilitic subject. In other words, the condition termed *atrophia cutis maculosa* may presumably appear spontaneously in a patient having syphilis, without being preceded by clinically visible changes in the affected areas of the skin. These atrophic macules may obtain shortly after the disappearance of a luetic eruption, or they may not manifest themselves for many years after all cutaneous lesions have subsided. In the latter case, no direct transition from a resolved syphilitic lesion to an atrophic macule, is demonstrable.

Instances of the first type, in which atrophic macules appeared soon after the resolution of syphilitic lesions of the skin, have been reported by Wilson, Nivet, Balzer, Danlos, Oppenheimer, Balzer and Destrazes, Herrscher, Pelagatti, Baum, and Gross. In the second type, atrophic spots appeared so many years after the complete subsidence of luetic efflorescences, that the question of a direct relationship existing between the two, is a very difficult one to decide. Some of them must be classed under the category of idiopathic macular atrophies of the skin. Examples of this type are more rare; they have been described by Balzer and Reblaub, Mibelli, Dubois-Havenith, Reines, and Leven. The last named author, however, has come to the conclusion that in his case, at least, the atrophic macules were the direct result of a previously existing active syphilitic process in the skin. Finger and Oppenheim believe that atrophic macules occurring in luetic subjects *post infectionem*, are never truly idiopathic—that all of them are directly due to the constitutional disease, irrespective of the time of their appearance.

Histologically, an arbitrary differentiation between the syphilitic and idiopathic forms may be recognized. In the former, the loss of elastic tissue is accompanied by a cellular infiltrate in the affected areas; in the latter, the elastic tissue may disappear without a preexisting or accompanying cellular infiltrate, or other manifestations of an inflammatory process. Furthermore, the perivascular infiltration and the changes in the walls of the bloodvessels characteristic of a syphilitic process, may, of course, be manifest in the earlier stages of the atrophic process. This point was well illustrated

in the case reported by Fordyce, which will be considered when we discuss the diffuse form of cutaneous atrophy, of which his case was an example, though not a typical one. In the long standing cases of cutaneous atrophy, it is doubtful if the microscope is capable of revealing the nature of the antecedent or primary changes in the skin, whether they be syphilitic or idiopathic.

Of the instances of maculæ atrophicæ following syphilis, the case reported by Mibelli is one of the most interesting. It occurred in a man, aged forty-nine years, whom Mibelli first saw in 1895. Four years previously, the patient had been infected with syphilis (penile chancre). He developed a generalized maculopapular eruption, which, together with all other signs and symptoms of the disease, disappeared under intensive mercurial treatment. In 1899, Mibelli again saw the patient, who presented himself with a nodular serpiginous syphilide of the right deltoid region, leucoderma colli syphiliticum, and numerous atrophic macular lesions on the trunk and extremities. These atrophic spots were characterized by a peculiar wrinkled surface, resembling puckered cigarette paper—the *anétodermie* of Jadassohn. The lesions appeared without any preceding manifestations on the skin, syphilitic or otherwise. Topographically, they did not correspond to the sites of the maculopapular eruption which the patient had presented eight years previously.

Histologically, Mibelli demonstrated a marked thinning of the elastin, pronounced perivascular infiltration of all, or nearly all the vessels, including isolated bloodvessels, as well as those surrounding the sebaceous glands, hair follicles, coil glands, and their excretory ducts.

Mibelli considered the most important clinical feature to be the flaccidity of the skin in the atrophic macules. This *anétodermie* probably resulted from the thinning of the elastic fibres, pointing to the existence of a true atrophic process, more especially since the perivascular infiltration possessed the characteristics of an atrophying dermatitis.

DIFFUSE ATROPHY OF THE SKIN ASSOCIATED WITH SYPHILITIC INFECTION.

In considering the question of diffuse cutaneous atrophy and its relation to syphilis, several elementary points deserve brief mention. In the first place, it should be remarked that the diffuse forms of atrophy do not result from the coalescence of disseminated macular areas, such as those above described. The diffuse form is diffuse from its inception. The atrophic areas increase in extent slowly and insidiously, by means of a centripetal extension of the advancing edge of the process. In the second place, we must bear in mind the fact that a patient may present evidences of the coexistence of syphilis and diffuse cutaneous atrophy, without the slightest relationship existing between the two diseases. An individual afflicted with atrophy of the skin may, of course, acquire a syphilitic infection as readily as he would if his skin was normal. Obviously, if the atrophy antedates the invasion of the syphilitic virus, there can be no question of cause and effect from the etiological standpoint. The atrophy, in such a case, would have to be regarded

as idiopathic in character, instead of deuteropathic.

On the other hand, let us assume that an individual afflicted with syphilis presents the first signs of diffuse cutaneous atrophy, years after his infection. Are we justified, in such a case, in attributing the atrophic changes in the skin to syphilis as a causative agent? An instance of this kind was observed in Professor Fordyce's service at the Vanderbilt Clinic, by Wise and Snyder.¹ A woman (Mrs. H. L.), aged fifty-four years, was married and infected with syphilis by her husband at the age of nineteen years. She suffered with the form of diffuse cutaneous atrophy known as *acrodermatitis chronica atrophicans*, the first signs of which manifested themselves thirteen years after the luetic infection. Careful examination revealed no evidences of syphilis from the clinical standpoint, but repeated Wassermann tests (performed by Doctor Zinsser and Doctor Jagle) were positive. Histological sections of the atrophic skin of this patient were compared with sections derived from another case² of diffuse atrophy, in which the presence of syphilitic disease was excluded; the histopathological findings in both sections were almost identical. *The section from the infected patient presented no more evidence of a syphilitic process than did that from the nonsyphilitic patient.*

Casual reference has already been made to the fact that certain authorities (Finger and Oppenheim) do not look upon syphilis as a causative agent in the etiology and pathogenesis of diffuse cutaneous atrophy. A critical analysis of the cases which these authors have collected from the literature certainly supports their view, with possibly one or two exceptions. Their monograph contains an appendix in which 203 cases of various types of cutaneous atrophies are summarized or briefly recorded. In reading over these abstracts, the writer noted that between 125 and 130 of the cases were examples of the diffuse type of atrophy and that in only two of them was the coincidence of syphilis recorded: one by Fordyce (1904), the other by Oppenheim (1906). In connection herewith the important fact should be borne in mind, that the great majority of these patients were observed long before the serological tests for syphilis were discovered. In how many of these 130 patients, syphilitic disease may have been the causative agent in the production of the diffuse cutaneous atrophy, would be an interesting but difficult question to answer. In a further search through the literature for relevant cases published after 1910 (the year of Finger and Oppenheim's publication of cases they had collected), the writer failed to find case reports in which syphilitic infection *antedated* the appearance of the diffuse cutaneous atrophy. (The instance already mentioned, reported by Wise and Snyder, is the one exception.) Ravogli's case (quoted by Fordyce) occurred in a syphilitic girl of eighteen years, but, as Fordyce says, the type of cutaneous atrophy in this case had nothing in common, clinically, with the progressive diffuse forms. Oppenheim's case was in reality a mixture of the macular and diffuse types of the affection. It oc-

¹This case report has been published. See reference at end of this paper.

²Case of Mrs. B. D. Fred Wise, *Acrodermatitis chronica atrophicans; the Transition from Infiltration to Atrophy*, *Jour. Cutan. Dis.*, April, 1914, xxii, 4, p. 205.

curred in a man of twenty-eight years, afflicted also with syphilis, for the treatment of which he entered the clinic. The skin of the right lower extremity, from the ankle to the middle of the nates, was diffusely bluish red in color, wrinkled, somewhat scaly, and presented numerous dilated and tortuous veins, shining through the integument. On the abdomen and over the shoulders there were a number of circular and oval bluish patches, some of them surrounded by a lighter areola. In them there was neither scaling nor wrinkling. The palpating finger received the impression of a hole in the skin. The duration of the atrophic process is not mentioned, but from the description of the lesions, it is evidently of many years' standing. The patient applied for the treatment of an initial lesion and developed secondaries during his short stay in the hospital. The case is therefore an instance of the idiopathic type of atrophy.

A case like that of Oppenheim, which illustrates merely a coincidental syphilitic infection of a patient affected with cutaneous atrophy, is interesting only in a negative sense. To the clinician, knowledge of the fact that the diffuse atrophy of the skin antedated the spirochetal infection in his patient, at once eliminates the question of an etiological relationship existing between the two maladies. In connection herewith it may be asked: Is it not possible that in a patient afflicted with idiopathic diffuse cutaneous atrophy, who subsequently acquires syphilis, the latter infection may induce certain pathological alterations in the atrophic skin, which, on histological examination, may so closely resemble a true syphilitic process as to be indistinguishable from it? The question is purely academic, but it involves the interesting and obscure subject of the effect of superimposed syphilis upon existing cutaneous manifestations of various kinds.

In the form of diffuse atrophy known as *acrodermatitis chronica atrophicans*, the atrophy is always preceded by distinct cellular infiltrations in the corium. A complicating active syphilitic process in a case of this type, especially in the early infiltrative stages, may produce histopathological changes which do not readily lend themselves to a plausible interpretation of the microscopic findings.

Fordyce's case is, in certain respects, unique. It is the one instance in which (as Fordyce remarked) it may be safely assumed that the symmetrical cutaneous atrophy which the patient presented was probably due to a preexisting syphilitic infection. In connection with this point, the author states:

From an early period of the affection there was profound involvement of the nervous system which later culminated in hemianesthesia, a partial hemiplegia and various oculomotor paralyses. Under antiluetic medication these nervous manifestations, along with the definite specific infiltration in the skin, disappeared. It may, therefore, be considered as definitely established that syphilis was present as a complicating if not as an essential factor in the case. There were certain reasons, however, for assuming that syphilis might have been responsible for the entire clinical group of symptoms, although that infection had never been invoked in the etiology of this type of atrophy. The early implication of the nervous system, at the time or soon after the extremities showed the first signs of hyperemia and atrophy; the occurrence of the atrophy in patches,³ rather than in the diffuse form usually met with, and the circumscribed transitional areas of swelling and redness,

suggested at least that a single cause might have been operative. This view was strengthened by the result of the histological examination, which revealed vascular changes in the early atrophic lesions, fairly typical of syphilis. A definite diagnosis could not well be made on the strength of the changes in the vessels alone, but in connection with the subsequent developments in the case, they were, to say the least, very suggestive. It is, of course, not impossible to conceive that the patient was afflicted with the so called idiopathic atrophy and syphilis at the same time. If such had been the case the syphilis probably antedated the atrophic change, for when unmistakable specific lesions of the skin appeared, they were of the late variety and pointed to an infection of several years' duration. The strongest reason for rejecting syphilis as an etiological factor in the writer's patient is the fact that in the cases hitherto reported (with one exception) its possibility as a causative agent has not been suggested. It would not be altogether wise, however, to assume that our knowledge of syphilis is complete or that its capabilities are fully known. Within comparatively recent years it has been proved that certain gangrenous ulcers and even Raynaud's disease have resulted from specific vascular changes. It seems not irrational to assume that the atrophy of the skin, though not conforming to any known cutaneous lesion of syphilis, might have been induced by the partial obliteration of the lumen of the vessels which the histological examination revealed. Such an hypothesis, based on definite tissue alterations at the site of the atrophy, agrees more accurately with our knowledge of the action of the specific virus than the assumption of an obscure trophoneurotic disturbance of a central or peripheral origin.

It will be readily understood, from what has been said, that whenever we discuss the coincidence of cutaneous atrophy and syphilis of the skin in the same patient, the paramount question which presents itself—one may say almost axiomatically—is this: Did, or did not the syphilitic infection antedate the atrophic lesions of the skin? If syphilis precedes the atrophy, we are at least justified, as Fordyce points out, in attempting to demonstrate an etiological and pathogenetic relationship between the two widely divergent cutaneous maladies. If, on the other hand, the atrophy precedes infection with syphilis, the question of etiological relationship is, obviously, at once thrown out of the discussion. Even in the latter case, however, the microscopic findings may possibly depict changes referable to both diseases, in one and the same section of tissue.

The case about to be described is an example of the coexistence of the so called idiopathic type of diffuse cutaneous atrophy (*dermatitis atrophicans diffusa idiopathica*) with active syphilitic lesions of the skin. In this patient, syphilis was acquired many years after the atrophic changes first appeared. She was formerly under the care of Dr. Jerome Kingsbury, who, recognizing the coincidence of the maladies, placed her under antiluetic medication, with a resultant prompt improvement as far as the cutaneous evidences of syphilis were concerned. She discontinued attending Doctor Kingsbury's clinic, however, before complete resolution of the syphilitic efflorescences had taken place and, after a prolonged period of neglect, presented herself for further treatment at the Vanderbilt Clinic, where she came under the observation of Doctor MacKee and the writer (August 27, 1914), in the service of Professor Fordyce. The patient was subsequently presented before the New York Dermatological Society by Doctor MacKee.

CASE. Mrs. A. C., aged forty-five years, a native of North Germany, had been residing in the United States

³Not, however, in the form of *atrophica maculosa cutis*. (F. W.)

for many years. The family history was negative. She married at the age of twenty-one years and had two children, one of them living and well (?) (Wassermann not taken); the other child is said to have died of marasmus at the age of four months. There were no miscarriages. Her husband was said to have died of Bright's disease, at the age of thirty years, twelve years ago. Before his final illness, the husband confided to the patient that he had been infected with syphilis in his youth.

The patient was a frail woman of medium height and poorly developed musculature. Her general appearance was that of a fairly healthy, hard working individual. Her hair was dark brown and normal in quantity and texture. The dentition was normal. Menstruation was irregular. Several years ago she suffered with gastric ulcer, from which malady she seemed to have recovered. Aside from this disease, she did not recollect having had any serious illness. The urine was normal. The Wassermann reaction was four plus. (November 12 and November 16, 1914.)

Physical examination: Aside from a rather poorly nourished body, flabby musculature, neurotic temperament, etc., no abnormalities were found. The reflexes were normal, as were the pulse, respiration, special senses, etc. Visceral changes of syphilitic nature were entirely absent. Cutaneous sensibility was unaltered.

History of cutaneous condition: When five years of age, the patient remembered having asked her mother the cause of the red "blotches" on the back of both hands. She recollected her mother replying that they "must be birth marks." There was no history relative to exposure to excessive cold, heat, or to injuries. The back of the hands became bluish red in color, resembling chilblains. There was a little pruritus. During childhood, these areas of skin became thinned and wrinkled, glistening, and parchmentlike in appearance. As she grew older, the process spread up the arms, until it involved the integument up to a short distance above the elbows. After the lapse of an indefinite number of years, she noticed that the skin on the outer side of the forearm became stiffened and yellowish in color. The skin on the other portions of the forearm became thin, smooth, soft, and velvety, the veins showing prominently. The trouble caused little or no inconvenience, except cosmetically.

The skin over the dorsum of the feet first showed signs of a similar process at the age of twenty-three years, two years after her marriage. The progress of the malady on the lower extremities was in every way analogous to that on the forearms. It gradually spread upward until the integument of both legs was implicated to within a short distance below the groins. Instead of becoming loose and parchmentlike, however, the skin covering the dorsum of the feet, the ankles and the shins became tense and stiffened, yellowish in color, and pigmented. On the upper part of the legs and on the thighs it was smooth, soft, and bluish red in color, the underlying veins being tortuous and prominent. Around the knee joints the skin was wrinkled and hung in loose folds, more especially on the left limb.

About five years ago, she noticed the appearance of ring-wormlike, scaly, and crusted patches over both shins. These were somewhat raised, rough to the touch, and dark brown in color. This condition gradually spread, until it involved the entire anterior surface of both legs, from the ankles to just below the knees. The change in the appearance of the skin was unaccompanied by subjective sensations. In place of the smooth, reddish, glistening surface which had persisted for years, the front of the legs was now covered with a dirty gray, rough, and crusted coating, which, upon attempts at removal, left a raw, oozy area underneath. The lateral and posterior surfaces of the legs soon assumed the same appearance, until finally the lower two thirds of both legs were enveloped by a sleeve of coalescing crusted lesions. After a while, the scaly and crusted patches gave place to scattered, irregular, oval and round, depressed areas, which became yellowish white and smooth, especially around both ankles. The upper edges of the crusted areas remained raised, rough, convex, and sharply defined, presenting a striking contrast to the skin above them, with its smooth, glistening, atrophic appearance.

When the patient first presented herself at the Vanderbilt Clinic, her skin showed the following changes (Figs.

1 and 2). The hands, from the second phalangeal joints to the wrists, were reddish blue in color, the skin was wrinkled, glistening, parchmentlike; the veins and tendons shone through the skin prominently. Almost in the middle of the back of each hand, the bluish red color was replaced by a dollar sized, irregularly circular area, of a dirty yellow color, with a smooth, shining, waxlike surface, somewhat resembling morphœa. In this area, the underlying veins were not visible, but the tendon sheaths shone through distinctly.

The integument of the forearms was everywhere bluish red in color, thinned and atrophic in appearance, velvety to the touch, and more or less wrinkled. There was a complete absence of follicles and not a trace of hair growth. Overlying the ulnar bones there was a narrow strip of skin

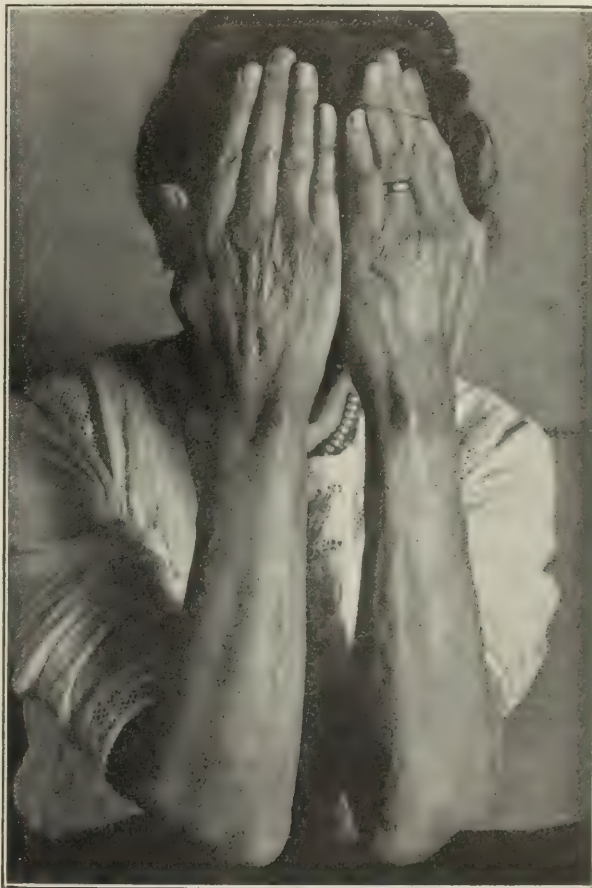


FIG. 1.—Showing the wrinkled and parchmentlike cutaneous atrophy of the hands and forearms, and the bands of scleroderma-like skin over the ulnar bones. The proximal half of the left "ulnar band" is wrinkled. (Mrs. A. C.)

in which the color, instead of being bluish red as elsewhere, had more the appearance of the patches on the back of the hands—that is, a yellowish tinge, with a waxy sheen; over the proximal halves of the ulnar bones, these bands presented the wrinkled condition seen on the hands. The veins of the forearms were quite distinctly apparent, gleaming through the thinned skin.

Over both elbows the skin was loose, flaccid, shrivelled, and parchmentlike and, with the arm in an extended position, it hung in loose folds around the elbow joint, as though the cutaneous envelope of the articulation was too large for its contents. The color was a mottled bluish red; the superficial veins were distinctly outlined. On palpation, the skin was silky, soft, and inelastic. The skin above the elbows, almost to the middle of the upper arms, presented the same alterations as that of the forearms. The atrophic appearance gradually gave place to normal skin, there being only an indistinct line of demarcation showing the edges of the advancing process.

The dorsum of the feet and the ankles presented a yellowish, waxy, tense, smooth covering, with numerous dirty

brown pigmented spots scattered here and there, some isolated, others coalescing into irregular scalloped lentigines. The tendon sheaths were prominent. The skin of the toes showed no changes. The lower two thirds of the legs were incased in a more or less crusted envelope of keratotic skin; its surface was rough, a dirty brown in color, showing irregularly scattered areas of elevation and depression; these depressions were for the most part smooth, atrophic scars, irregular in outline, waxy yellow in color, and hard to the touch. Around the ankles they were confluent.



FIG. 2.—Showing diffuse cutaneous atrophy of the lower extremities; *anétodermie* of the integument around the knees; a nodular syphilide on the outer side of the right knee joint; and a nodular serpiginous syphilide of the lower two thirds of the legs. The skin of the toes is normal. (Mrs. A. C.)

aspect of the right knee joint, opposite the patella, was a semicircular, crusted, and nodular patch, about the size of a child's palm; it had the appearance of being imbedded in the wrinkled, loose skin of the knee joint, the inner edge of the patch fusing with the patellar integument, the outer edge being raised and sharply defined. The skin above the knees presented the same changes as that of the forearms, i. e., it was reddish blue in color, thin, smooth, hairless, and velvety to the touch. Follicular mouths were not visible. A little above the middle of the thighs, the atrophic skin gradually merged with the normal integument above; there was no distinct line of demarcation between abnormal and normal integument.

The skin of the rest of the body, including the palms, soles, and face and scalp, was perfectly normal. The hair and nails showed no changes whatever.

Subsequent history: Immediately after the results of the several Wassermann tests were learned, the patient was given the routine mercury salvarsan treatment. The nodular serpiginous syphilide of the lower extremities soon resolved, leaving typical, yellowish, depressed, smooth scars (See Fig. 3). The portions of skin unaffected by syphilis remained unchanged.

From this description it will be readily seen that we are dealing with two widely dissimilar conditions, namely, diffuse atrophy of the skin and a nodular serpiginous syphilide of the skin, both processes appearing coincidentally in certain regions.

The atrophy of the skin of the hands evidently began very early in life, for the initial appearances were actually looked upon as birthmarks. Idiopathic cutaneous atrophy beginning in infancy is an extremely rare occurrence, only a few cases being

on record (Finger and Oppenheim). There is no reason to doubt the patient's history. The appearance of the upper extremities in this patient is in every way typical of the dermatitis atrophicans diffusa idiopathica, as described by numerous observers. An interesting feature is the presence of the so called "ulnar bands"—a clinical peculiarity more commonly associated with acrodermatitis chronica atrophicans (Herxheimer and Hartmann), but occasionally also seen in the ordinary diffuse cutaneous atrophies.⁴ Both upper extremities were absolutely free from clinical manifestations which could be associated with syphilis. Furthermore, vigorous antisyphilitic treatment produced no visible changes in the skin of the arms.

On the lower extremities, we have the interesting circumstance of a typical serpiginous syphilide superimposed upon a preexisting atrophic integument. The atrophy of the skin of the legs and knees had existed for fully seventeen years before the first lesions of syphilis appeared on them. It seems that in spite of the unusual soil upon which the syphilitic changes were engrafted, the progress and clinical appearance of the latter were practically identical with analogous luetic efflorescences occurring on healthy skin. In our patient the normal regions of the skin were free from syphilis, only the atrophic areas being the seat of syphilitic manifestations. Presumably we may adduce from this, that the pre-existing, deep seated integumentary changes, together with the poorer circulation of the lower extremities, acted as a *locus minoris resistentie* in relation to the spirochetal invasion. The incidence of a syphilitic plaque imbedded in the midst of the ill nourished, lifeless skin of the right knee, would, in a measure, lend support to such a view. To what extent, if at all, the syphilitic process would have attacked the skin of this patient, had there been no primarily atrophic soil, it is, of course, useless to speculate.

With regard to the remaining clinical features in this case, such as the tense, waxy, opaque, bound down skin of the lower legs and ankles, resembling scleroderma—most of them have already been considered in other publications.⁵

Histopathology. A small piece of skin was removed from the advancing border of the syphilitic lesion in the left leg, in such fashion that one half



FIG. 3.—Showing scarring and pigmentation of the legs, in the area of the serpiginous syphilide, after mercury-salvarsan treatment. The atrophic skin elsewhere shows no changes. (Mrs. A. C.)

⁴Fred Wise, The Differential Diagnosis between Diffuse Atrophy of the Skin and Acrodermatitis Chronica Atrophicans, *Archives of Dermatology*, January, 1915.

⁵Wise and Snyder, *loc. cit.*, giving references to the relevant literature.

of the excised part included syphilitic tissue, while the other half was composed of the adjacent atrophic skin of the leg.

Sections were stained with hematoxylin-eosin stain and with Weigert's elastic tissue stain. These sections were examined immediately after their preparation, and laid aside for future detailed study, but were unfortunately mislaid and lost. The patient flatly refusing to submit to a second biopsy, the following incomplete description of the general histopathological changes will have to take the place of a more detailed report.

Broadly speaking, it may be said that the syphilitic portion of the tissue depicted the characteristic changes common to that disease, while the atrophic part revealed the actual microscopic appearances commonly seen in the late stages of atrophying dermatitis. There was no abrupt line of demarcation between the two disease processes, to correspond with the clinical appearance (Fig. 2). One feature, as was to be expected, was common to both halves of the section; namely, a great diminution of elastic fibres in the pars reticularis, with complete disappearance of the elastic tissue in the pars papillaris of the corium, the remaining elastic fibres showing marked fragmentation and cloudy swelling. There were no sebaceous glands and hair follicles throughout the section; coil glands were not encountered in the tissues examined. In the syphilitic area, the bloodvessels showed the characteristic thickening of their external and middle coats, partial and complete obliteration of their lumina and perivascular lymphocytic and plasma cell infiltrations. Similar vascular changes were present at a considerable distance beyond the edge of the syphilitic process, invading the atrophic portion of the section. In the latter, the bloodvessels were few and far between; some of them were surrounded by a moderate collection of lymphocytes and plasma cells, while others were entirely free from cellular infiltrates. Most of them showed evidences of endothelial proliferation, with partial and complete obliteration of their lumina.

SUMMARY AND CONCLUSIONS.

This case, then, is the second recorded instance of the coexistence of diffuse cutaneous atrophy and syphilis of the skin, that of Fordyce being the first. Aside from the fact that both disease processes existed at the same time and in the same integument in both patients, no parallelisms can be adduced from a comparison between the two cases. As stated, in Fordyce's patient the syphilis antedated the diffuse atrophy and may very well have been the cause of it. In the writer's case, the conditions were reversed, so that the question of a syphilitic etiology can not be taken into consideration. In the writer's case, the advent of a syphilitic infection seemed to exert no appreciable changes upon the preexisting atrophic skin, nor did vigorous antilutetic medication affect the latter in any way.

It has been pretty definitely established that atrophy of the skin, of the macular type, may follow as the result of a preexisting cutaneous syphilide. It is also probable that macular atrophy may appear in syphilitics without being preceded by syphilitic cutaneous lesions, as in Mibelli's case.

The occurrence of diffuse cutaneous atrophy of syphilitic etiology and pathogenesis is recorded in but one instance. Much further study would be required to determine the question of cause and effect between the two conditions. With present day diagnostic aids, investigation along these lines will undoubtedly lead to much valuable information in connection with the atrophies of the skin.

For the photographic illustrations accompanying this paper, I extend my thanks to Dr. George M. MacKee; and for his kindness in permitting me to make use of the material from his clinic, I am indebted to Professor John A. Fordyce.

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24 WEST FIFTY-NINTH STREET.

THE TREATMENT OF DIARRHEA.

By E. MATHER SILL, M. D.,
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In the treatment of diarrhea three things are of paramount importance, namely, to empty the bowel, give it rest, and allay further irritation. Colicky pains and distention of the abdomen indicate the presence of irritating substances in the bowel and are quickly relieved by a warm normal saline enema or irrigation of the colon, ridding this organ at once of gas, mucus, and undigested food remnants. From one to two tablespoonfuls of castor oil should be given to clear out thoroughly the whole intestinal tract, but if nausea or vomiting prohibits its use, a single dose of three to five grains of calomel should be given. In general, it is always better for a patient with acute intestinal symptoms to be kept in bed.

The intestine must have rest and this is obtained by temporary abstinence from food or a very simple diet. Hot tea in small quantities may be given, also toast or crackers, with the tea or soaked in hot

water. Thick barley gruel, farina, and brown flour soup may all be given. All irritating or coarse and cold foods or cold drinks should be avoided for several weeks. After the bowels have been thoroughly cleared of the offending material, by means of the initial purgative, soothing and astringent drugs should generally be given.

Ten grains of bismuth subnitrate are given every two hours until the movements turn black and their frequency is reduced to two or three daily. The black color of the stools is the result of a sulphide being formed in the intestine; in case the black color does not appear, one grain of sulphur is added to each dose of bismuth. Where there is tenesmus or much pain or straining, it will be necessary to give opium in some form. A teaspoonful of paregoric in half a glass of hot water, to which a tablespoonful of brandy and a little sugar have been added, is often a grateful remedy for this condition. If pain is severe and urgent symptoms require immediate relief, ten drop doses of tincture of opium may be given.

In order to avoid possible relapses, it is advisable to continue medication until it begins to show slight constipating effect. Twelve hours after the subsidence of symptoms, a more liberal diet may be given, such as soft boiled or poached eggs, toast, crackers, zwieback, farina, rice, macaroni, spaghetti, scraped beef, broiled steak, stewed chicken, buttermilk, baked or mashed potatoes, and asparagus tips. All the coarser vegetables and fruits should be avoided for at least a week. The patient should be kept under observation until after a return to normal diet to prevent relapse.

In the more severe or fulminating attacks of diarrhea, with copious, watery stools and marked prostration, stimulation is necessary, and it may be advisable to stop temporarily the excessive number of watery stools. Brandy and whisky in the shape of a hot toddy should be used freely to combat the prostration, and a hypodermic injection of one quarter grain of morphine given to control the diarrhea and tenesmus. Hot applications should be made to the abdomen; enemas are not indicated in this condition, except in rare cases where in spite of the copious movements the bowels remain distended.

After overcoming the prostration, our duty remains to rid the bowel of the offending material, and this is most effectively done by giving divided doses of calomel, one tenth to one quarter grain according to age of patient, every half hour until ten or twelve doses are given. A tablespoonful of castor oil may now be administered, and daily colon irrigations of a normal salt solution for two or three days. Bismuth is given in the same way as in milder cases.

Every acute diarrhea in an old person should be looked upon seriously, since it is harder to control and leads more rapidly to fatal prostration than in one who is younger. It is much more dangerous to give opiates to old people; we should therefore rely more on hot saline irrigations, hot applications over the abdomen, hot alcoholic stimulants, and astringent drugs such as tannigen and bismuth subnitrate. When it is necessary to use opiates, they should be used with caution and laudanum and paregoric should have preference.

CHRONIC DIARRHEA.

In order to treat chronic diarrhea successfully, we must first learn, as far as possible, the causative factors and eliminate them. There may be venous congestion of the bowel resulting from heart, lung, liver, or kidney lesions, so that it is necessary in every case that the patient have a thorough physical examination.

Diarrhea may be the direct result of deficient gastric secretion, especially where there is achylia gastrica. In this condition all coarse and irritating foods must be avoided and the amount of albuminous food greatly reduced. The food must be well prepared, soft, free from fibres or indigestible substances. All foods that ferment easily or putrefy should be prohibited.

Chronic diarrhea cannot be successfully treated without giving attention to the underlying condition such as hyperchlorhydria or other conditions mentioned above. White bread, whole wheat bread, or graham bread may all be given, also soft boiled eggs, soft meats, such as sweetbreads, brains, stewed chicken, white fish, etc. Cocoa and tea are allowed, but wines, beer, and ale are prohibited. Spinach, asparagus tips, purée of potatoes or peas are allowed. Spaghetti, macaroni, thoroughly cooked farina, oatmeal, and steamed rice are all usually well borne.

While chronic cases are mainly treated by dietetics, acute exacerbations must be combated by sedatives and astringents, rest in bed, and colonic irrigations. It is sometimes necessary to continue the use of bismuth subnitrate for a long time, in ten grain doses three times a day after meals. For severe pain or tenesmus, paregoric or tincture of opium may be given temporarily.

DIARRHEA IN INFANCY.

Diarrhea in infancy in the majority of cases is purely a food disorder arising from overfeeding or improper feeding, or is the result of infectious processes. Some cases of diarrhea may be accounted for by extreme heat, fright, or sudden changes in the weather.

Diarrhea, as is known, is much more common in the summer and among bottle fed babies; this is due to contaminated cow's milk and other substitutes for mother's milk and to a lowered vitality of the infant arising from the hot weather. Thus we are given the clue to the prophylactic treatment. Infants should be protected from the heat, especially the direct rays of the sun; light clothing should be worn, cool water in abundance should be given, frequent bathing is essential, and above all in importance the milk supply should be protected from contamination from the time it leaves the cow at the dairy until the nursing bottle is emptied. Each individual child should have its milk specially modified according to its requirements.

With the onset of an acute attack of diarrhea in an infant, four things are necessary, as in the adult: Empty the bowel of the offending material, give the inflamed or irritated intestine rest, allay the irritation, and check the excessive number of stools.

To infants up to one year of age one tenth grain of calomel every half hour for ten doses is given, and this is followed by one teaspoonful of castor oil.

Children from one to three years receive one eighth grain of calomel, followed by two teaspoonfuls of castor oil, while those from three to six years are given one sixth grain, followed by a tablespoonful of the oil. In most cases this is sufficient to clear out the bowels, but where there is considerable fever, a distended abdomen, and foul smelling stools, a high saline irrigation of a pint of warm (110° F.) normal salt solution should be given at once by means of a No. 15 American soft rubber catheter attached to the tube of a fountain syringe. This is well oiled and passed full length into the bowel. The water is allowed to flow in slowly and be expelled through the rectum until the washings come clear. The child should be kept quiet in bed.

If the onset is stormy with high fever (104° to 106° F.), vomiting, and foul smelling stools containing mucus, the stomach should be washed with a stomach tube, in normal tepid saline solution, until the washings come out clear, and the bowel irrigation should be of a cool saline solution. The child is then given a sponge bath to reduce the temperature, or better still is placed in a cool pack by wrapping it in a dampened bath towel, which is wet every half hour with cold water, until the temperature drops to 101° F. Where there is a great deal of prostration, I order a mustard bath at once, with vigorous rubbing while in the bath. If the pulse is rapid and thready, stimulation should be given in the form of brandy, twenty drops well diluted every hour or two, until the urgent need is over, or tincture of strophanthus one to three drops every two hours. In these severe cases it will frequently be necessary to give the stimulation by hypodermic injection, since the stomach may not retain medicine.

When first seen the child may be too much prostrated to permit of stomach washing; in such cases it should be done as soon as it has sufficiently revived to stand it. While the severe retching and vomiting continues, nothing should be given by mouth in the way of nourishment. Frequent doses of a few drops of hot water act as a sedative to the stomach and are often retained when nothing else is. This is to be continued as long as the frequent vomiting, if present, lasts, before nourishment of any kind is given.

If the child is in the algid stage, with cold feet, hot water bottles should be applied. In case the temperature is below normal and the peripheral circulation is poor, a hot water bath (108° F.) should be given and repeated every half hour. Hypodermic stimulation will be required as elsewhere indicated.

No matter whether the infant is bottle or breast fed, all milk should at once be stopped. Infants under three months of age are given boiled water, slightly sweetened, for twenty-four hours. While those over that age are given barley gruel (two tablespoonfuls of barley flour to a quart of water), but as long as the frequent vomiting lasts, nothing but frequent drop doses of hot water are required.

As soon as all the calomel and the dose of castor oil have been given, the mother is instructed to give bismuth. This is prescribed as bismuth subnitrate, in ten grain doses every two hours, and is continued until the stools become of a firmer consistence, black in color, and two or three in number, in twenty-four hours.

Opium in some form in a certain few cases is almost indispensable; this is where there is great tenesmus or excessive peristalsis or where the child is having twenty or thirty watery stools a day. In such cases it is best given in the form of Dover's powder, one quarter to one half grain, every two or three hours, until the condition is relieved. *Opium in any form should never be given until after the fever has subsided and all toxic material has been removed from the bowel.*

In the mild cases, at the expiration of twelve to twenty-four hours, if the vomiting and diarrhea have ceased, breast fed babies are allowed the breast at every other feeding, and, after a day or two, at every feeding. In bottle fed babies, after the acute diarrhea is checked, for those that can afford it and can obtain ice and certified milk, one half to one ounce of milk may be added to every other feeding of water or barley gruel according to the baby's age. If this agrees, the amount of milk may be rapidly or gradually increased until one third of the feeding is fresh milk; then another feeding of the fresh milk is added and the child, according to its symptoms and digestive power, is rapidly or gradually brought back to a proper nutritious diet. Other cases of the tenement house class, or those who for some reason cannot obtain the certified milk, and also some babies among the more fortunate class who do not take fresh milk well, or have perhaps had a chronic intestinal indigestion for some time, or have been previously fed on one or other of the proprietary baby foods, I prefer to start on condensed milk by adding a half teaspoonful to every other feeding of the cereal gruel, and the next day half a teaspoonful to every feeding, and so on, increasing gradually the amount up to two or three teaspoonfuls every feeding. Then it is advisable to use the fresh or unsweetened evaporated milk, since a larger amount and thus a stronger food can be given by so doing on account of the lower percentage of sugar present.

Many of these infants will have to be kept on the evaporated milk during the entire heated term and the raw cow's milk added gradually as the cool fall weather comes; in other cases half an ounce of fresh milk can be added to one feeding, and if this agrees, one ounce can be added, and the amount gradually increased until a third of one feeding is fresh milk, and then the fresh milk can be substituted for another feeding of condensed milk, and thus, by slowly increasing the amount and number of fresh milk feedings the child is brought back to a normal diet. Similar methods are employed with children over one year of age, to combat the disease in the beginning, but we are, as a rule, able to use cow's milk sooner, and we can give other things such as scraped beef, zwieback, farina, cream of wheat, beef juice, crusts of bread, and buttermilk, but we must gauge the food according to the digestive capacity of the child.

In infants under nine months of age, the Eiweiss Milch, or protein milk of Finkelstein may be used, sometimes to advantage. Older children, however, do not take to it kindly, and often refuse it on account of the taste, but it may be made more palatable by sweetening. After the acute symptoms have subsided, it is given with barley water, one part of

Eiweiss Milch to three parts of barley water. This is rapidly increased to half milk and half barley water. This is as strong as we usually make it. It is more readily retained and digested than cow's milk, and will tide a child over a critical period for a few days until it can retain and digest raw or evaporated milk.

104 WEST SEVENTY-SIXTH STREET.

SCHOOL HYGIENE,

Primarily Dependent Upon School Architecture.

By JOHN B. TODD, M. D.,
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It has been observed that the sturdy, successful people of our cities are country bred, and that their descendants in a few generations deteriorate. This is due in part to the environment under which children are bred and reared in cities. Our schools determine the environment that surrounds the child during its education and are largely responsible for the deterioration that occurs in cities. It is the architecture of our schools that has not received the attention that it should. In many States there have been attempts at school hygiene by legislative enactments which provide rigid requirements of floor space, window opening, air requirements, etc., and the chief concern of the architect has been to prepare plans which would be accepted by the authorities rather than to attempt improvements. The result has been the evolution of a conventional plan whose faults are perpetuated by custom and law.

School hygiene is fundamentally dependent upon school architecture. As a branch of general science it must grow by the scientific method of experiment and observation. Practically it is immovable—frozen by legal enactment. School architecture is a division of the science and art of architecture, and it also becomes dead, and not living and progressing, as soon as its scope and freedom are defined and limited by law.

Suppose the science and art of automobile construction had been defined by law, ten years ago, with a penalty for deviations, then, instead of the wonderful efficiency we now have, there would have been perpetuated the unsatisfactory product of that time. Take the instance of warehouse design and construction—but a few years ago a semi-fireproof or slow combustion building with heavy floors upon which the goods were stored, was considered sufficient. Now we have structural steel and concrete buildings with the first floor as attractive as a department store, bank, safety deposit vaults, rug and fur rooms, rest rooms, and offices, while the upper stories are merely structural steel racks just the size to hold the steel packing cases—which are as large as a moving van. These are filled with goods, sealed and locked, transferred to the warehouse by autotruck, lifted by the elevator, and slid into the rack, safe from flood, fire, and thieves. This is architectural and engineering progress along lines of efficiency for the purpose of dividends. We want the same effort for the purpose of efficiency of education where the dividends will be health.

It is futile to attempt to place legal bounds around

any art or science, for as soon as that is done, all progress is arrested. Well intentioned enthusiastic people attempt to make people better by getting laws passed rather than by education. I believe with Plato that every one is trying to do what is best and it is only for lack of education and wisdom that often the worst is mistaken for the best.

Specifically to ascertain in what respect the conventional school is unhygienic, the consideration of communicable disease will be first in order. The conception of physicians and sanitarians of the causes that permit the spread of infectious disease has changed materially within the past five years—even within one year. Five years ago, it was believed that germs were disseminated through the medium of books, clothing, furniture, etc., and that frequent fumigations destroyed the germs. Sanitary practice in conformity with this belief did not materially diminish the number of infections. The accepted view now is that infectious diseases are distributed from the school to the community, and distributed principally through three sources:

1. By exposure to frankly clinical cases.
2. By missed cases, which are unrecognized or unrecognizable.
3. By carriers.

Communicable diseases are scattered by personal contact of one having the disease with one who is a subject. Droplet infection can occur at any distance from which the germ of infected matter can be discharged in sneezing or talking, which has been found experimentally to be from six to twelve feet. The term "personal contact" therefore includes all association by which the infection of disease can be transmitted. The principal communicable diseases are diphtheria, scarlet fever, measles, cerebrospinal fever, infantile paralysis, whooping cough, tuberculosis, pneumonia, infectious colds, smallpox, German measles, and chicken pox.

Recent medical and sanitary authorities are unanimous that the principal mode of transmission of communicable disease is by personal contact, and that the schools are the clearing house for distribution. Out of hundreds of references that could be given are the following:

Bulletin of the New York State Department of Public Health, August, 1914: "It is the carriers who are most dangerous, and bacteriological tests have shown that two or three persons out of one hundred are carriers." Dr. F. Mitchell Prudden states in the same issue, "the schools are important links in the wide distribution of infectious material." In the November, 1914, issue is the statement, "Disease germs are commonly spread by means of contact between people themselves, in measles, whooping cough, tuberculosis, and many other diseases. The germs are present in the nose and are spread by the fine spray thrown out from the mouth in talking, coughing, and sneezing." The *Journal A. M. A.* for December 12, 1914, says:

Ordinary contagious disease is acquired by direct contact and chiefly by the patient breathing in germs or particles of infected matter, which have been expelled by the person affected with the disease, by sneezing, coughing, or even loud talking. A frequent means of transmitting disease from one person to another is by so called "missed" cases, that is, patients who have the disease in such a mild form that it is not recognized. This is especially likely to hap-

pen with diphtheria and scarlet fever. Another frequent source of acquiring the disease is by means of so called "carriers" . . . that is, persons who have had in their throats or other parts of their body the microbe organism of disease, but who do not know that they have the disease and are not made ill by the germs. The scales of desquamating scarlet fever do not carry contagion. Scarlet fever is spread only by contact with the infected person or with articles infected by the patient. Measles, apparently the most readily spread of any contagion, seems to be transferred only by contact. Whooping cough, German measles, and chicken pox are all probably spread by contact. Drop-let contamination of the air and of articles immediately about a person infected with pulmonary tuberculosis or diphtheria frequently occurs. It has been shown in hospitals that if the nurses are careful not to allow contact with other patients, smallpox, measles, and scarlet fever, the most contagious of all diseases, may be cared for in adjacent wards, and in careful experiment in adjoining beds without infection of others. It is hardly probable that pneumonia and acute rheumatism can be spread in any other way than by contact. Cerebrospinal fever and infantile paralysis doubtless require contact.

At the Fourth International Congress of School Hygiene, President Charles W. Elliot stated in his opening address: "The whole subject of the reduction of infectious risks in schools and colleges is in a very crude state, requiring the immediate attention of school authorities and the medical profession."

Dr. E. H. Place (1), of the Boston City Hospital, states: "Numerous instances of diphtheria and scarlet fever being spread by the schools are found. The significance of school attendance on public health lies not only in the assembling of children in a room, but also in the bringing into more or less intimate association a number of children who otherwise would not have met at all. Further, the classroom is not the part of school attendance which has the greatest danger; the intervals of play and recess and the meeting before and after school are most important."

Professor Edwin O. Jordan (2), of the University of Chicago, states: "*More favorable opportunities for the dissemination of infectious diseases could hardly be devised than those afforded by the school.* (The italics are mine.) . . . In the United States, in 1910, there were about 6,000 deaths from measles in the registered area or at least 11,000 in the whole country. It must be remembered that the chief danger of spreading measles infection occurs in the early stages before the eruption has appeared, when the child is suffering apparently only from a slight cold."

An editorial article in the *Medical Review of Reviews* for February, 1915, states: "The possibility of school contagion, however, appears more important than ever before, as the contagion exists during the earliest stages of the disease. In fact, an insidious onset at times makes it possible to infect a large number of children before exclusion from school is possible. . . . The prevention of unnecessary contacts with those actually diseased is practicable."

THE DISTRIBUTING CENTRE OF INFECTION.

"Children coming from all sorts and conditions of homes," states Parsons (3), "make the public schools the great distributing centre of infection for the whole community."

"It is the mild cases," says Chapin (4), "the

child just beginning to be sick, the returning convalescent, or 'carrier' of disease germs who does the harm. It is quite direct contact with human beings who are growing the germs of disease that is dangerous."

Doctor Bissell, of the Department of Health, Buffalo, N. Y., observes (5): "It is a noticeable fact that with the beginning of school session, after the usual period devoted to vacations, the amount of contagious disease materially increases. This feature is not confined to any one municipality, but has been a matter of general observation, and is due to the fact that the closer association of individuals increases the opportunity for closer contact with infection," and according to Freeman (6), that the schools are perhaps the most important agency in the spread of contagious diseases is a generally accepted fact."

It is the closer association of individuals—coming from all sorts and conditions of homes—that increases the opportunity of contact with infection that makes the schools the distributing centre of infection for the whole community. This closer association can be divided for the purpose of consideration into,

1. Necessary and unavoidable.
2. Unnecessary and avoidable.

The necessary and unavoidable associations are those that occur in classrooms, during the time of school periods, and of greater number for shorter periods in the occasional auditorium sessions. The classroom is the school unit, and each, so far as its work is concerned, is entirely separate and independent of every other. In fact, each classroom with its teacher is a separate and independent school, each has its own work, different and not correlated in any way with the others. When a pupil passes a grade he leaves that classroom forever and takes up the work in the grade next higher. The child progresses through the school grade by grade, and when he is in one grade he has no concern or affiliation in any way with the grade he has passed, nor with the grade in advance. Therefore, it becomes perfectly evident that each grade or classroom is an independent school, and that such associations as occur in it are necessary and unavoidable.

The unnecessary and avoidable associations are those that occur in the mingling of all the grades—from the kindergarten to the highest—in the corridors and halls several times a day. If a school has sixteen grades with an average of forty to a grade, each pupil of a single grade of forty has opportunity of coming into association and contact in the halls with six hundred outside of his grade that otherwise would not have occurred. Beside the necessary and unavoidable contact with his own grade of forty, he is forced into contact with six hundred that are outside of his grade.

In schools which have one toilet room only for each sex, there is unnecessary and unavoidable opportunity for association and contact—remember, when I say contact, I mean association that is sufficient for infection to occur.

Our school buildings with their interior halls and corridors are probably lineal descendants of the monastery with its interior halls and lateral cells, which in our schools are the classrooms. The halls

are always the worst ventilated part of the building and very often are dark and filled with dust and odors. But they are used in common by all the grades in entering or leaving the building. By reason of the closer association forced upon the pupils in the halls, it is here that the greatest unnecessary opportunity for contact and infection occurs. It is here also that contact and mingling of the different grades produce disorders of discipline which are the source of more trouble and anxiety to the principal and teachers than all the rest of the school. In many schools a great portion of the principal's time and energy is used up in adjusting the disorders and disturbances that occur in the halls, to the neglect of real supervision and assistance to the teachers that are necessary for school efficiency. The principal, instead of being a leader whose wise guidance and enthusiasm keep the school at the top notch of efficiency, makes his office a sort of children's court and fritters away his time in considering disorders that would never have occurred but for the mingling in the halls.

Toilet rooms also afford opportunity for promiscuous mingling and contact of all the grades. They are generally situated in the basement, where all the girls use one common room and all the boys another, and where opportunity for contact is afforded. The basement corridors are ill ventilated and dusty, and they too are sources of disorder as well as disease, and require constant supervision.

It is argued by conservative educators that the halls and corridors are valuable and necessary adjuncts of a school building, first, for school supervision and administration; second, for economy in construction of buildings; and, third, for class exercise, marching, etc.

The principal's office is generally situated at one end of the hall to give opportunity of observation. This is because the halls are the sources of disorder from the mingling of grades which have nothing in common only that their separate classrooms are under one roof, and to get into or out of the classrooms they must meet the rest in the halls. If the halls did not exist and each classroom had its own outside door, the necessity of this supervision on the part of the principal would cease, and his time could be devoted to efficiency of the work of the school for the purpose of education. Not only would this increase the efficiency of the educational machine by reducing the friction of disease and disorder in the pupils, but it would also increase the working efficiency of the teachers and principal by relieving them from this source of worry.

It is stated that schools of two or more stories with stairs and halls, can be built cheaper than one story. The saving, it is said, is in:

1. Cost of the smaller plot of ground.
2. One foundation and roof answer for the building.
3. By building a two story building on a small plot of ground, there is economy.

1. The first statement is admitted. A small plot of ground will cost less than a large one. But from the viewpoint of hygiene and efficiency the small plot of ground is a liability and not an asset. Poultry breeders have learned that they can be successful only when they have their flocks in small separate groups with ample yard room and well venti-

lated and lighted houses. Ought not we to rear and educate our children under as hygienic conditions, relatively, as we do our chickens? To grow really healthy children, they must have a place to exercise and play upon the ground in the open air and sunlight. Their play and recreation ground is as important and necessary as, or of more importance than any part of the school plant. The play and recreation ground should be under the charge of a special teacher and should be in continuous use during the school hours. Repeated efficiency tests have shown that more work is performed by periods of intense application alternating with brief periods of rest. In the growing child the rest comes with play. Instead of one general period of recess which gives opportunity for promiscuous mingling of all the grades, there should be rotation of play periods, so that the play ground is in use all the time, giving ten or fifteen minutes out of the hour to each class for opportunity to get their blood in circulation throughout their muscles and their lungs ventilated in the outdoor air. The imperative need of a large lot—from five to fifteen acres—is universally recognized by the foremost educators and sanitarians. School boards will say, "that perhaps is possible in localities where land is low priced, but not in a thickly settled part of the city." If we admit the soundness of the argument that in settled localities the cost of land to provide hygienic schools with play grounds is prohibitive, then children born to people in those localities where wealth is abundant and land is valuable, are singularly unfortunate. Because of the wealth of the community in which they are born they must go to a tenement school and be exposed to all the risks and dangers inseparable from those buildings and their associations, while, on the contrary, children of poor parents living in unimproved sections of a city or in slum districts where land is cheap, may enjoy the advantages of the most modern type of hygienic schools with ample playgrounds.

This line of argument leads inevitably to the conclusion that land is of greater value than the health and lives of our children, or if we reject that conclusion and determine to give our children the best possible education under conditions favorable to health, we must consider the acquisition of the necessary land the very best possible investment.

The land is the only part of the school investment that is permanent and of increasing value. The buildings deteriorate or become outclassed in a comparatively short time. In reality the investment in buildings should be considered part of the school equipment and five per cent. should be charged off against each year for deterioration.

Compared with the wealth of a community, a ten acre school should cost no more in a wealthy locality where land is dear, than in a poor locality where it is cheap. If the land really costs more in dollars, it is because of the wealth of the community, and if the community is wealthy, it can pay the greater cost as easily as a community where land is cheap.

The people living in a wealthy community can afford to buy valuable ground for stores, manufacturing plants, picture shows, and saloons, and if they fail to grow strong, healthy children they defeat the principal object of their life's work. These same people would scorn and refuse to live in a tenement

house occupied by families using common halls and a common toilet, still they do not hesitate to send their children—their most precious possessions—to a tenement school to be exposed to the infections of the entire community by the unnecessary mingling in the common halls and toilet rooms.

2. The statements that one foundation and roof results in economy or that, 3, by building a two story building on a small plot of ground there is an economy, will be considered together.

The basement of a school is useless for all purposes, except as storage and for the heating plant. It is always dusty and the air is close and worse than any part of the building. It is common practice to place the toilets, playrooms, and domestic science rooms in the basement. Hygienically the basement is unfit for school purposes. Neither should the heating plant be in the basement. It increases the fire hazard, and the dust from coal and ashes permeates the building. The basement costs more to the cubic foot to construct than any part of the building, because of the necessity of excavation, and of building deep and heavy foundation walls and piers to carry the weight of the rest of the building. It is altogether a useless adjunct of the school. The money thus expended can be used otherwise with greater advantage.

The many story building must be built with heavy exterior walls and heavy interior walls safely to carry the floors and roof. The stairs should be iron or at least fireproof construction and are costly to build. The roofing of such a school is not a simple matter and requires substantial construction to carry the load. The interior halls increase the floor space from twenty to fifty per cent. A two story building, to be safe from fire risk, should be of fireproof construction and will cost from nine to ten thousand dollars a school unit. Built with wood floors, the cost will be from seven to nine thousand dollars a unit. Of course, if the exterior walls are built of wood, the cost will be much less—but the building will be a fire trap. It does not appear to be an economy for a city to pay from \$150,000 to \$200,000 for a school that is unhygienic because of its architectural unfitness, when with the same expenditure it could have a large lot and hygienic school.

The solution of the problem is a group of hygienic cottage schools on a large lot. Dr. R. W. Corwin, of Pueblo, Colorado, originated the plan of one room cottage schools, but the idea has spread. Beside the cottage schools in Pueblo, there is an eight room school at Colorado Springs and at Piqua, Ohio. Rochester, N. Y., has a fourteen room one story school built on a modification of the California type. Its objectional feature is the retention of the interior hall and the fact that each classroom has only one window, making efficient window ventilation impossible.

The advantages of the one story cottage multiple unit school are twelve in number:

1. The elimination of all unnecessary "contacts" between the different grades. This would reduce the infectious disease risk to the minimum. As long as the mingling of all grades in the halls continues, it is impossible to prevent the disease carriers and missed and incipient cases from making

the schools the unnecessary distributing centre of the infections of the community. If the cottage school had no other reason for adoption, this alone would be sufficient for the purpose of prevention of disease.

2. The large ground necessary for the cottage school is an asset of incalculable value. The money invested in the grounds is the only part of the investment that is permanent and of constantly increasing value. The buildings begin to deteriorate as soon as completed, until in a longer or shorter period they become worthless.

Under the delusion that they are building for permanence, our school buildings have become extravagantly costly. If it was possible to build a building that would last forever, it would be undesirable, for in a short period it would be outclassed and become a liability instead of an asset. The value of the correlation of study and play is becoming universally recognized by advanced educators and sanitarians. By rotation of classes the playground could be in continuous use. The frequent active play in the open air and sunlight would develop healthy bodies and active minds and would increase the efficiency of the school in every way very materially.

3. The one story cottage school would eliminate the fire risk entirely—no matter what the type of construction might be, whether of wood or other material.

4. The elimination of stairs would very materially reduce the cost, as well as the danger that is always associated with their use in schools.

5. The elimination of the basement would reduce the cost of construction and at the same time get rid of a source of dust and disorder.

6. By dispensing with the interior hall, we avoid the opportunity of contacts in the different grades. The halls are always badly ventilated and add greatly to the cost of heating. To warm and care for the halls increases the cost of maintenance from fifteen to fifty per cent.; we reduce the cubic contents of the buildings from fifteen to fifty per cent.

This means a reduction, not only of total square feet of foundation, but also of the character of the foundation. In two and three story tenement schools the foundation walls must be heavy and carried down deep. All the carrying walls must be very heavy. Often then we find settling of walls and cracks in the buildings. In the cottages without basement or interior hall, the foundation can safely be very much less heavy and consequently less expensive.

7. They can be perfectly ventilated by the open windows, using cloth screens in cold weather¹. The saving the cost of the expensive ventilating apparatus would be a great gain, beside the cost of power, care, maintenance, and depreciation.

8. The plan is elastic. The inexpensive school units can be provided as needed from the kindergarten up to junior high school, as the growth and development of the locality require.

9. Because of the less expensive type of construction, the multiple unit school is the cheapest. The total investment in each school unit is much less. A beautifully finished and equipped eight room

¹See School Ventilation, *School Board Journal*, April, 1915.

bungalow can be built anywhere in the United States for from five to eight thousand dollars, and without doubt a two room school with independent plumbing could be built as cheaply.

10. The inexpensive central building can provide the auditorium, gymnasium, baths, offices, etc.; also the heating plant, which would furnish steam heat for each cottage school.

11. Whenever a case of infectious disease does occur, the exposures have been those only which were unavoidable—that is, in the class room of a single cottage, and if it should become necessary to close that, it would not disrupt the entire school.

12. It is a distinct advantage in school supervision. The principal, not being called upon to waste his time in considering disorders of discipline that are unavoidable from the promiscuous mingling in halls, can give a much greater part of his attention and energy to school work, and this will react to the advantage and the standing of the school. The teachers also will have less trouble in maintaining discipline and can do better work. J. F. Keating, Superintendent of Public Instruction for Colorado, states: "Principals of the many roomed buildings, who do not know by experience the advantages of the cottage plan, are apt to criticize it on the ground that it makes supervision difficult; that it piles up too much work for the principal. The contrary is our experience. The matter of supervision is reduced to a minimum in the cottage plan, for the reason that each room can take care of itself so well that very little oversight is necessary. Our principals who have these buildings under their administration are enthusiastically in favor of the unit plan."

All these economies and advantages are secondary to the principal one of *prevention of disease*, but to design and build one of these inexpensive hygienic cottage schools will not seem a very attractive proposition to the architect whose income is in direct proportion to the cost of the structure. The whole trend of school architecture has been in one direction only, that of increased cost, with an endless variety of external design and inside arrangement, around the ever present corridors and halls that serve to mix and distribute disease and disorder. While the medical profession is striving in every way to eliminate and prevent disease; which results in lowering its income, the architects increase their income by inducing the public to build more and more expensive unsanitary schools.

Perhaps it will be a very long time before the authorities in our very large cities will see the necessity of acquiring lots of sufficient size to provide adequate one story schools. Until that time arrives they should adopt the type of architecture of the model tenements at Seventy-eighth Street, East River, New York.² An open court, twenty feet wide, divides the buildings on the ground floor from east to west and from north to south. The stairs

and halls to the other floors are all open, leading from each interior corner. Each suite of rooms has an abundance of light and fresh outdoor air from outside windows and entrance doors to the open air halls. This type of building would be vastly superior hygienically to the conventional school. The principal points of superiority are the elimination of all mechanical ventilating apparatus, which would be greater economy in construction and maintenance; each classroom could be properly ventilated by the open windows, using cloth screens³ for diffusing fresh air in cold weather.

This fresh air ventilation is vastly superior to any form of mechanical ventilation, for the reason that its oxygen is made slightly active by the ultraviolet rays of the sun. This slight activity is destroyed in passing through the heating and washing machines; besides, the glass of the windows absorbs the ultraviolet rays very strongly so that the sunlight coming through the windows is deprived to a great extent of this beneficent source of energy, whereas the light as well as the air coming into the rooms through open or cloth screened windows, carries with it the life giving rays which purify the air and destroy spores and germs of disease, as well as increase metabolism and resistance to disease. The danger of contact infection would be minimized in this type of school in two ways: First, by reason of the air in the classrooms being active, thereby quickly destroying bacteria, and, second, the open air halls would give less frequent opportunity for contact; at the same time they would always be filled with fresh active outdoor air.

Another advantage of this type of school is the economy that would result by heating only the classrooms, offices, etc. The elimination of the closed halls and stairs would reduce the cost of heating from fifteen to forty per cent.

To make any material advance in school hygiene, we must educate the school authorities and architects to break away from the conventional type of school buildings.

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DISEASES OF THE ESOPHAGUS.

Studied by the Aid of the Esophagoscope.

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Throughout the last century efforts were made by many eminent clinicians to construct a practical esophagoscope. The reason for this was not that useful sounds and other esophageal instruments were lacking (see Fig.), but because it was keenly felt that the existing means of making a diagnosis of affections of the gullet were inadequate, and it was realized that ocular inspection was the only method by which a diagnosis could be made. In spite of this

²The Home Hospital for the treatment of the tuberculous poor of the thickly populated East Side, occupies two sections of forty-eight suites of rooms. Families having members who are tuberculous, are taken, taught hygiene, domestic science, and are regenerated physically and socially. The results thus far are superior to those obtained in our most noted sanatoriums, which is due partially to the fact that instead of breaking up families, as occurs in segregating victims of tuberculosis, the families are kept intact and regenerated. This bright oasis in the antituberculosis campaign that has swept over the country was instituted and is maintained by the Association for the Improvement of the Condition of the Poor.

³For articles by the author on cloth window ventilation, see: *NEW YORK MEDICAL JOURNAL*, Feb. 28, 1914; *IBIDEM*, Apr. 18, 1914; *Scientific American Supplement*, Feb. 21, 1914; *Ibidem*, Jan. 30, 1915; *American City*, Jan., 1915; *Trans. Fourth International Congress School Hygiene*, v. 4, p. 455, 1914; *American School Board Journal*, Apr., 1915; *Engineering Magazine*, Apr., 1914; *Mind and Body*, Feb. and March, 1915.

early start, esophagoscopy has been slow in gaining recognition, and even today, in most clinics, the diagnosis of affections of the gullet is based upon the history of the case and the findings with the sound. Strange to say, it is not infrequent, even in the very latest literature treating of esophageal disorders, to see the esophagoscope casually mentioned as an instrument that may be "useful in some cases," to which is usually added that the esophagoscopic technic is very difficult, and sometimes a hardship to the patient.

The technic of introducing a properly constructed esophagoscope is easily acquired. To interpret correctly the conditions seen, and to accomplish this in the shortest possible time require practice. Esophagoscopy properly done, with few exceptions, causes the patient no pain and very little discomfort. The

important question, however, is, Can a positive diagnosis of affections of the gullet be made, and in some cases can the proper treatment be carried out without the aid of the esophagoscope?

Percussion, auscultation, and palpation are of negligible value in the examination of the gullet; röntgenoscopy is a valuable adjunct, but its usefulness is quite limited, and the same must be said about the esophageal sound. Except for determining the presence or absence of an obstruction, and for the estimation of the calibre of a stricture, the sound is of little use.

By the aid of a properly constructed esophagoscope, however, the situation at once becomes changed, so that instead of the gullet being an organ most difficult of approach, it has become the most accessible, barring none, as far as diagnosis is concerned, and also in regard to the treatment of certain affections of the organ. It has been my experience,

with relatively plenty of material studied esophagoscopically, and 150 cases which I have used as a basis for this paper, that positive diagnosis of affections of the gullet during life can be made only by the aid of the esophagoscope. It does not make any difference how many cases one may have seen, if they have not been examined with the esophagoscope so many mistakes in diagnosis will necessarily be made, that such cases when reported have less scientific value, because conclusions cannot be drawn from them, except that their number indicates the frequency of esophageal disorders.

All affections of the esophagus have the same main symptom in common, i. e., "disturbance of deglutition," and most other symptoms are relative to or expressions of this; hence the difficulty of differential diagnosis, unless the esophagoscope is used in the examination. Diverticula of the upper end of the gullet, certain foreign bodies, etc., may, of course, be demonstrated by röntgenoscopy, but such cases should also be examined esophagoscopically for reasons that will be discussed under their respective headings. Likewise, cancer of the gullet

may unquestionably be guessed, and at times correctly, from the history of the case and the findings with the sound, when a man of advanced years cannot swallow his food and is cachectic. However, the object should be to make a diagnosis before the patient gets to that stage, and that can only be made esophagoscopically. The accompanying chart shows the variety of affections of the gullet represented in the material that has come under my observation.

In my work on the esophagus there have been two deaths. One followed a few days after a gentle attempt at dilating the epicardia cardia in a case of far advanced sarcoma. To judge from the post mortem specimen in that case, however, it was questionable whether death was due to the attempt at dilatation. The other case was a chronic cardiospasm in which the opportunity was taken to stretch the epicardia cardia under ether, which was administered for some other operative purpose. During this, some of the fetid smelling fluid contained in the greatly dilated gullet, was inhaled by the patient and this was followed by abscess of the left lung and death.

CLASSIFIED CHART OF DOCTOR LERCHE'S ESOPHAGUS CASES.

Neuroses.....	Sensory	Hyperesthesia and Paresthesia	Primary or idiopathic
			Secondary
	Motor	Esophagospasm	Primary (idiopathic)
			Secondary
		Cardiospasm	Primary (idiopathic)
			Secondary
Cicatricial strictures	Atony of the esophagus		
	Insufficiency of the cardia		
	New growth	a. From corrosives	
		b. Following scarlatina	
		c. Deep seated strictures of unknown origin.	
		d. Membranous strictures of unknown origin.	
Stenosis from compression	Foreign bodies	Goitre	
		New growth	
Dilatations	Foreign bodies	Mediastinal lymph nodes	
		Abscess, periesophageal	

FIG. — Jameson's esophageal sound from the year 1825.



Esophagitis acuta
Esophagitis chronica
Esophagitis exfoliativa
Ulcer esophagi pepticum
Ulcer in the middle third of esophagus
Injuries

Dilatations { Diverticula
Diffuse dilatation

Foreign bodies

The relative proportions of the most frequently occurring affections in the 150 cases were:

Sensory neurosis ¹	18.6 per cent.	} 35.9 per cent.
Motor neurosis	17.3 per cent.	
Malignant growth	20 per cent.	
Cicatricial strictures	14 per cent.	
Foreign bodies	17.3 per cent.	

NEUROSES OF THE ESOPHAGUS.

The neuroses, in my experience, constitute the most frequently occurring affections of the gullet, because not only do they exist as primary or idiopathic affections, and also secondary to morbid conditions outside the organ, but a *local neurosis is present in every case of anatomical lesion of the gullet at some time.*

The importance of this will be further brought out by illustrative cases under the various headings.

Sensory neuroses (hyperesthesia, paresthesia). Hyperesthesia and paresthesia depend upon an abnormal increase in the irritability of the sensory nerves of the gullet. The patient may complain of

¹This does not include cases of sensory neurosis secondary to cancer or other organic lesions of the esophagus itself.

pain on swallowing, or of the sensation of a constriction, pressure, burning, or choking, or of the sensation of the presence of a foreign body.

1. Primary or idiopathic sensory neurosis of the gullet is perhaps not an infrequent occurrence.

CASE I. A business man, aged thirty years, who had always been strong and well, suddenly developed dysphagia with the sensation of a constriction in the throat, about one year prior to consultation. He stated that his first physicians attributed this to his stomach, but that later he had been referred to some one who had made the diagnosis of stricture in the upper part of the gullet, and cardiospasm. He was consequently first treated with bougies, without benefit, and was then to have his cardia stretched. No esophagoscopy examination had been made. When I saw the patient he had lost twenty-five pounds in weight. On esophagoscopy examination, the gullet was found perfectly normal. There were no signs of stricture in the upper part, nor was there any cardiospasm. It was a case of sensory neurosis. This information had a salutary effect upon the patient, who regained confidence in his ability to swallow, and gained thirty pounds in weight without any treatment.

2. Secondary sensory neurosis. Hyperesthesia or paresthesia of the gullet may be a symptom of an organic lesion of that organ or of a neighboring organ. It may follow a temporary lodging of a foreign body. It may also be a symptom of neurasthenia, hysteria, etc. If, for instance, a careful history is taken in a case of cancer of the esophagus, especially of the upper part, it will be found that the patient first had a sensation as if there was a foreign body present, or a sensation of a raw spot in the gullet for some time previously, or a sudden dysphagia supervened. Sometimes a choking sensation with dysphagia will first be noticed. Such attacks of dysphagia soon disappear and the patient may have little or no difficulty with his swallowing for some time (perhaps for one or more months), when again deglutition becomes difficult and he grows progressively worse, with temporary complete obstruction. The dysphagia early in the disease and the complete temporary obstruction later are due to the secondary neurosis—sensory and motor.

CASE II. Man, aged sixty years, one year previous to consultation, noticed a sensation as if there was a foreign body in his gullet, and it was difficult to swallow solid food. At first this would come on, and repeatedly did so, only when he had a cold, but later a permanent, gradually increasing difficulty of deglutition was present. Two months before I saw the patient, he had an attack of dysphagia accompanied with much pain, lasting one week, during which time he could swallow only fluids. After this he felt better and could eat everything except meat.

Esophagoscopy showed an obstruction sixteen cm. from incisor teeth, due to a circumscribed growth springing from the posterior esophageal wall. A small esophagoscope was passed by the tumor and the lower limit of the growth could thus be determined. A specimen removed for microscopic examination proved it to be carcinoma.

CASE III. A man, aged seventy-four years, had always been strong and well until fourteen months prior to consultation, when he noticed a sensation of a raw spot in the gullet and a little pain on eating, to the right of the sternum, at the level of the third interspace. During the following seven months, such attacks recurred frequently, but in the intervals the gullet felt perfectly normal. He could eat any kind of food. Occasionally he noticed just a momentary stoppage of the food in the gullet. He had consulted several physicians, and on two occasions the stomach tube had been introduced for the examination of the stomach contents. No diagnosis had been made. Between the seventh and eleventh month after onset, there was difficulty of swallowing solid food on several occasions. Three months before I saw the patient, a diagnosis

of cancer of the esophagus had been made by the aid of the sound by the thread method. After this he could swallow nothing but fluids.

Esophagoscopy disclosed an ulcerated growth twenty-nine cm. from the incisor teeth. Specimen removed for microscopic examination showed epithelioma. The stricture was dilated to 45 F.

The symptoms just described as found early in a case of cancer of the gullet, may also be present in other lesions of the organ, and may occur where there is no anatomical lesion of the organ whatever, as exemplified in the following cases.

CASE IV. A woman, aged forty-two years, had for a few months had intermittent attacks of dysphagia, with a feeling as if there was something in her throat. This was gradually getting worse, and although she thought the attacks due to nervousness, she had a fear that there might be cancer. When, after an esophagoscopy examination, the patient was assured that there was no growth and that it was only a neurosis, her dysphagia disappeared.

Quite frequently patients ask advice for the sensation of the presence of a foreign body in the gullet, supposed to have been swallowed days, weeks, or months before. The patient can usually point out the location of the foreign body. On esophagoscopy examination a perfectly normal esophagus may be found and no foreign body. The assurance, however, of normal conditions after such examination may be sufficient to relieve the patient of the sensation.

CASE V. A man, aged fifty-seven years, said that he had swallowed a piece of a chicken bone, which had become stuck in his gullet, several weeks before he presented himself for examination. He stated that the piece of bone was felt somewhat below the larynx. It worried him considerably. His physician had introduced an esophageal instrument into the gullet and declared that there was no foreign body there. Nevertheless the sensation remained.

Esophagoscopy examination revealed a normal gullet and no bone. The patient was entirely relieved after being assured of this.

The necessity of circumspection in the examination is well illustrated by the following case.

CASE VI. A woman, aged fifty-six years, gave a history of having accidentally swallowed a burnt match, and said that she felt it in the upper part of the esophagus. Her soft palate was perforated and there was a peculiar, scarred appearance of the pillars and the right side of the pharynx. She denied syphilis.

Two esophagoscopies were made with negative results, but the patient insisted that the match was there. In a third sitting I also examined the trachea, and in the upper end posteriorly I found a lesion that I suspected was a broken down gumma. The symptoms gradually disappeared under potassium iodide.

Dysphagia as a symptom of a constitutional neurosis or hysteria is not infrequent.

CASE VII. Woman, aged twenty-nine years, was well up to three years before consultation, when she had a choking spell while eating supper and could not swallow food. She had a similar attack eighteen months later, and since then attacks with almost every evening meal and later with other meals. For two weeks immediately preceding the examination she could hardly swallow fluids, although solids passed somewhat better. She was afraid to swallow. She was a highly nervous woman. Esophagoscopy revealed a normal gullet. The patient could now drink any quantity of milk or water in my presence, but she could not take it in her own home. She was referred to a neurologist and recovered under suggestive treatments.

It is obvious that it would have been utterly impossible to make a positive diagnosis in the cases just described, without esophagoscopy examination. As far as the symptoms are concerned, any one of these cases might have been cancer or other

organic lesion of the gullet, or a foreign body, or primary or secondary neurosis.

The earliest symptom of cancer as well as of other lesions of the gullet, then, is the expression of the accompanying local neurosis which is *the signal of distress of the gullet*, that calls for esophagoscopic examination.

If a case upon such examination is found to be primary neurosis or a symptom of constitutional neurosis, the assurance of this has a beneficial influence upon the patient, and exact knowledge affords the physician a better basis for treatment. If a nonmalignant lesion is found, it may be dealt with accordingly—sometimes through the esophagoscope. If the case is found to be cancer in its early stage, this period naturally affords the best opportunity for surgical interference, and if by resection we become able to do anything for the victims of malignant growth of the gullet, the diagnosis must be made early. All affections of the esophagus give the same symptoms, and can be differentiated only by examining every case, be it ever so slight, with the esophagoscope.

Much, therefore, depends upon the attitude of the one first consulted, who, as a rule, is the family physician. If he takes cognizance of the fact that all affections of the gullet give more or less the same symptoms, and that nobody can make a positive diagnosis without the esophagoscope, he will insist that such examination be made and thus render the greatest service to his patient by making a correct diagnosis at the earliest possible moment.

CONCLUSIONS.

1. All affections of the gullet have one main symptom in common, i. e., the disturbance of deglutition, hence the impossibility of making positive diagnosis without the aid of the esophagoscope.
2. A local neurosis is present in every case of anatomical lesion of the gullet—at some time.
3. The local neurosis is the "signal of distress of the gullet" and it is a call for esophagoscopic examination.
4. Where disturbance of deglutition is present, it is just as important to demonstrate the absence of a lesion, as to demonstrate its presence.

LOWRY BUILDING.

MASTOIDITIS.*

Diagnosis, Course, and Complications,

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With each succeeding year, diseases of the ear are receiving more attention from the general practitioner, and the average physician nowadays is keenly on the alert for symptoms referable to inflammation of the middle ear and its complications. One of the most important questions for him to decide in this connection is, When does a case cease to be one of purulent otitis media and become instead an acute mastoiditis? The further problem of whether or

not it is an operative case, is one for the otologist to decide.

The clinical picture of acute mastoiditis is very variable and inconstant. Tenderness on pressure is the most valuable symptom. This tenderness is due to periostitis. Tenderness over the antrum or that part of the mastoid behind the auricle on a line with the auditory canal; tenderness over the tip of the mastoid; tenderness of the anterior border or that part of the bone between the antrum and the tip, or tenderness over the posterior border of the bone, all indicate mastoiditis. Where the tenderness is not very great, it can be best brought out by comparing it with the sound side, using the same amount of pressure on both sides. Some patients, who are aware of the significance of this symptom, deny feeling tenderness on pressure and endeavor to repress any demonstration of pain. This has to be guarded against. In estimating the amount of tenderness in a child, the best plan is to begin pressing the cranial bones at a distance from the mastoid and watch for change of expression as you near it. The only other condition which would give tenderness on pressure is a postauricular adenitis, and in this as a rule the ear symptoms are missing. A thickened cortex may interfere with this symptom, and there are numbers of cases of true mastoiditis that do not show tenderness, but take it all in all, it is the most reliable symptom we have.

Pain in an ear that is discharging freely, or pain behind the auricle, is strongly suggestive of mastoiditis. Often these patients complain of neuralgic pains over the vertex and side of the head and face. Once the drum is opened, either by nature or by the surgeon, if there is no involvement of the mastoid we should not expect pain. The pain of mastoiditis is worse at night, it is generally paroxysmal, and varies in intensity. Between the paroxysms of pain the patient is apt to feel discomfort and soreness of the mastoid region. Mastoiditis can exist without pain. In some of the worst cases, the patients never feel a twinge of pain and sleep undisturbedly.

A profuse discharge of straw colored fluid or pus is very often pathognomonic of mastoid involvement. The middle ear is relatively a small cavity and cannot produce or discharge much fluid if the process is confined to it. McKernon gave a very practical and valuable suggestion when he advised cleaning the canal thoroughly of all secretion, then watching for a drop of pus to exude from the perforation, wiping it away and seeing how long before another drop appeared.

A drooping of the posterosuperior canal wall, in connection with other symptoms, corroborates the diagnosis. Perhaps a better way to describe this would be to call it a narrowing of the calibre of the auditory canal at the innermost part, and it can be best brought out by comparing it with the healthy side.

Fever may or may not be observed. The writer has often seen marked involvement of the mastoid cells with absolutely no rise in temperature. On the other hand, an elevation of temperature in a patient with a discharging ear, unexplainable in any other way, would suggest mastoiditis.

As to displacement of the auricle, this is occa-

*Read before the Medical Society of the Borough of the Bronx, February 10, 1915.

sionally seen in infants and young children. It is caused by a rupture of the thin softened cortex and an escape of pus beneath the periosteum, which is lifted up from the bone, thus displacing the ear downward and forward. Occasionally this subperiosteal abscess is seen before the rupture of the drum. In a case seen recently in a boy fourteen years old, a large subperiosteal abscess existed, with a complete destruction of the mastoid cells, yet with an unruptured drum.

These symptoms are easily demonstrated, and a careful examination of the clinical picture should, in most cases, determine, by the presence of one or more of them, if mastoiditis exists, or in their absence exclude it as a complication of the middle ear disease.

There are certain other aids to diagnosis that are not so available, but which in doubtful cases are very valuable. The most important of these is the radiograph. A normal mastoid shows as a dark area with the bony cell partitions visible as light lines. A mastoid filled with pathological material shows an abnormally light area. Both sides are radiographed and the normal mastoid cells show up clearly and in a marked contrast to the dull, hazy cells of the diseased side. The radiograph was invaluable as an aid in diagnosis in the following case:

CASE I. Harriet W., aged eight years, was treated early in June, 1914, for an acute purulent otitis media, complicated by a mild mastoid involvement. She was treated conservatively and all symptoms, including the aural discharge, subsided in the course of three weeks. She was again seen early in November, 1914, with a profuse aural discharge which resisted all forms of local treatment, including an autogenous vaccine, for a period of about nine weeks. At this time, fearing that the otorrhea was caused by a chronic mastoiditis, the writer had Doctor Landsman radiograph the mastoid region. The findings showed a diseased process, and this was verified later by a simple mastoid operation, which showed complete absence of normal mastoid cells and considerable necrosis. In this case the only symptom was the discharge. There was absolutely no pain, tenderness, nor fever.

Doctor Dixon, in his laboratory work at the New York Eye and Ear Infirmary, has shown the virulence of acute middle ear disease in which the predominating infective organism is *Streptococcus mucosus capsulatus*, and the tendency to mastoid and intracranial complications in these cases should place us on our guard in the treatment of a case where the aural discharge shows this germ. In diagnosing an ear condition such as mastoiditis, we must always consider the possibility of furunculosis of the auditory canal. The error of confounding these two diseases is comparatively common. Where the two conditions coexist, or a furunculosis ensues on a purulent otitis, the problem is often difficult. In uncomplicated furunculosis the points to remember are, that manipulation of the auricle produces severe pain and that if care is taken to avoid movement of the auricle, we can press on the mastoid at will without causing pain. In furunculosis the speculum examination shows a swelling of the canal, and if the drum is not hidden by this, it usually is seen to be intact.

Most of what has been said in this paper so far has relation to the diagnosis of acute mastoiditis. Once this condition is diagnosed, the general practitioner had better work with the otologist in the

further guidance of the case. A large proportion of cases of acute mastoiditis under conservative treatment end in complete recovery. A certain number of them lose their acute inflammatory symptoms and go on to almost total resolution, leaving an area of necrosis in the walls of the antrum or nearby; the discharge from this dead bone escapes through the perforated drum, and we have a chronic aural discharge due to a chronic mastoiditis.

The third class of cases become "operative mastoids," that is, their symptoms do not improve with nonoperative treatment or they become graver, and one feels that operative intervention is the safest measure to adopt. In the critical period while the patient is under observation, in addition to observing the symptoms already enumerated, the tongue should be watched. A badly coated tongue would certainly not be an encouraging symptom. Doctor Rae calls attention to this, and it is a valuable index. Since the improvement in technic in mastoidectomy in the past fifteen years, it has ceased to be an emergency or life saving operation. The prognosis is most optimistic as to complete recovery in the vast majority of cases, and the risk run surgically is very small compared to that taken in doubtful or severe cases by delaying operation.

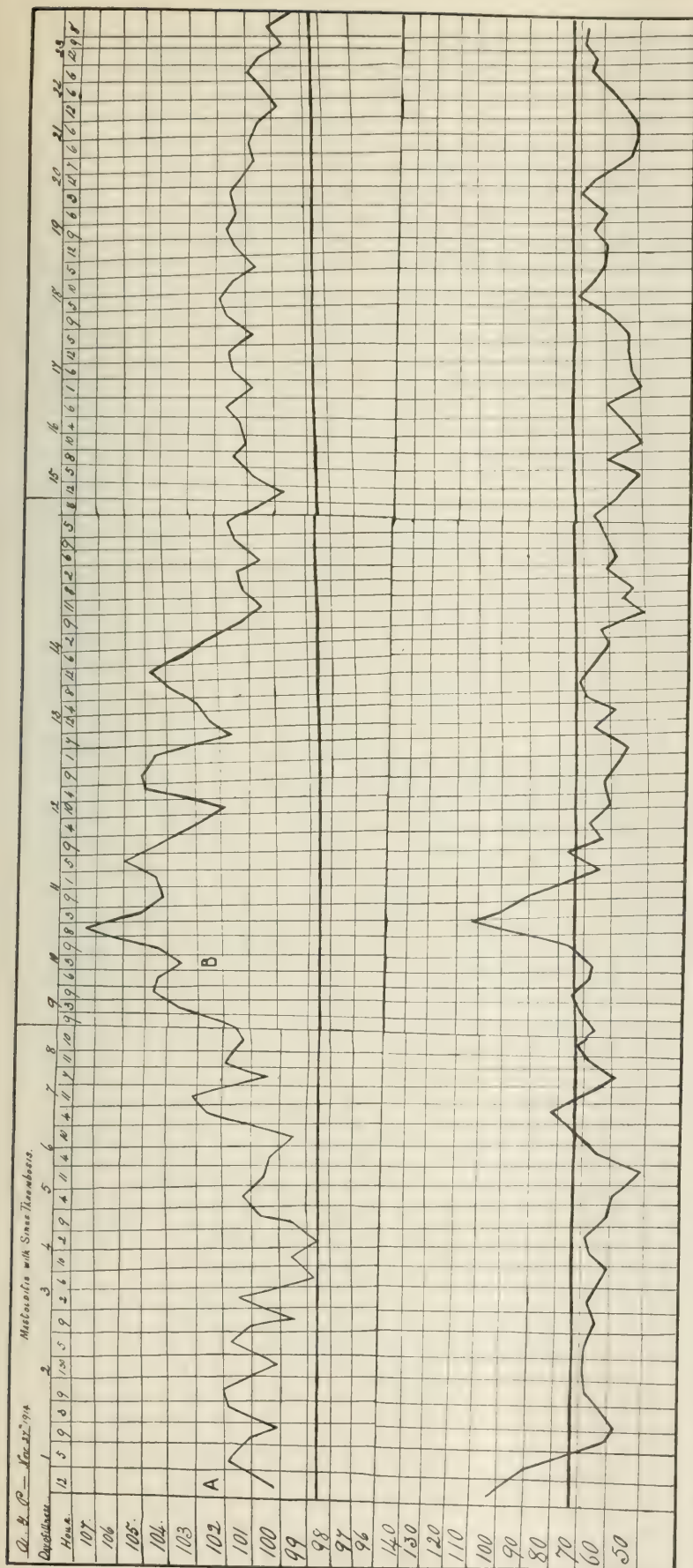
In the very young or in patients of advanced years, we should hesitate in operating unless absolutely forced to. Not long ago the writer had to operate on a six weeks old infant who had a subperiosteal abscess. The other extreme of life was seen in a woman of eighty-three years. Both patients fortunately recovered rapidly.

Intercurrent diseases sometimes complicate the situation, diabetes, for example:

CASE II. Mrs. L. A. S., aged fifty-five years, referred by Dr. S. C. Minor, was admitted to the Bronx Eye and Ear Infirmary, December 5, 1914, suffering with mastoiditis. She was a diabetic who had been under active dietetic treatment for some time owing to a severe dermatitis. Her urine showed on admission 0.6 per cent. of sugar and a large amount of acetone. She was put on a diet of oatmeal and cream and soft boiled eggs with bicarbonate of sodium until the acetone disappeared, and four days after admission, as her aural symptoms had not improved, she had a mastoidectomy performed under nitrous oxide and oxygen anesthesia. Her recovery from the operation was perfect and she left the hospital in good condition, a week later. At that time her urine showed the same amount of sugar with a trace of acetone.

Erysipelas is a common postoperative complication of mastoiditis. It generally appears twenty-four or forty-eight hours after the operation. When there is an initial chill with high fever and a delay in the appearance of the rash, we wonder if we have an intracranial complication to deal with. Some of these attacks of erysipelas are quite severe. The following history shows a fairly typical course.

CASE III. Mr. James H., aged thirty years, referred by Dr. John F. Holmes, was admitted to the Bronx Eye and Ear Infirmary, November 27, 1914, and had a simple mastoid operation performed. He had been in Doctor Holmes's care a very short time, but from his history had evidently had mastoiditis for a couple of weeks. He was septic and looked ill. His mastoid, which was unusually large, was entirely broken down and full of pus and bone detritus. Twenty-four hours after operation, a shiny red spot appeared in front of the ear on the operated side, and his temperature rose to 102.4° F. In twelve hours more his temperature was 104.2° F., and erysipelas was very evident. He was removed to his home where his temperature



Temperature chart, Case IV.

kept over 104° F. for three days. This then gradually receded and he slowly recovered. He was ill in all ten days. He was treated with injections of the Hiss leucocyte extract kindly provided by Doctor Dwyer.

The hair falls out profusely after erysipelas, and we should get the patient past the bandage stage as quickly as possible in order that the scalp may be treated. In another case of the writer's, the patient, a woman, lost all her hair and now has to wear a wig.

Sigmoid sinus thrombosis is a fairly frequent complication of mastoiditis. It happens most frequently where the forerunner of the aural difficulty was one of the severe constitutional diseases. The streptococcus is responsible for practically all cases of thrombosis of the sigmoid sinus. This condition is caused by the presence of pus around the sinus or from the contact of diseased bone. The lesion is an intrasinus clot. In this clot are the germs which predominate in the mastoid pus and in the aural discharge.

The constitutional symptoms of sinus thrombosis are caused by the discharge into the circulation of septic matter from these clots. As a rule there is a sharp chill or at least there are chilly sensations. There follows then a rise of temperature to 103° to 105° F., with a rapid pulse and flushed face, the patient looking extremely ill. This fever lasts some hours and then recedes, generally with profuse perspiration. The patient then looks and feels fairly comfortable for a day or more, when this cycle of symptoms is repeated.

A valuable aid in the diagnosis of sigmoid sinus thrombosis is to be had from blood cultures. In a case presenting the foregoing phenomena, we should immediately have a blood culture made and if there is a bacteriemia, it would be strong corroboration of the diagnosis of sinus thrombosis. A negative result would not mean that this condition was absent; it would encourage us perhaps to await further developments and have another culture taken. If this later culture was again negative and the clinical picture plainly one of sepsis unaccounted for in any other way than by the aural condition, we should be justified in exploring the sinus. From the discharge of septic foci from the clot into the general circulation metastases may be found anywhere. Perhaps this complication of sinus thrombosis may better be illustrated by the following history:

CASE IV. Mr. F. C. P., aged twenty-nine years, referred by Dr. N. B. Van Etten, was first seen at the writer's office on the afternoon of November 27, 1914. His right ear had been discharging since the morning of November 24th. He looked ill. His aural discharge was profuse, a straw colored, thin watery fluid. The posterosuperior wall was sagging considerably. He did not evince much mastoid tenderness. Immediate operation was advised. He was operated on late that evening, at the Bronx Eye and Ear Infirmary. Considerable necrosis was found, and there was present a large quantity of seropus, similar to that found in his auditory canal. There was a postoperative rise of temperature to 102.4° F., twenty-four hours later. The patient did well until the seventh day, when he had a slight chill, followed by a temperature of 102.8° F. (mouth). Forty-eight hours later his rectal temperature was 104.6° F. A blood culture was taken that day by Dr. J. Garfield Dwyer, and *Streptococcus mucosus capsulatus* was found in the blood. On the evening of December 6th, the patient was taken to the operating room and his internal jugular vein was resected to a point above the common facial branch. The upper part of the vein showed inflammatory exudate, being closely adherent to the adjacent tissues. No clot was demonstrated, so it was thought that the clot was parietal and had been washed away in the hemorrhage from the sinus when it was opened. The patient was put back to bed in good condition. An hour afterward he had a severe chill lasting a half hour, which was followed by a temperature of 107.4° F. After a cold pack this temperature fell in an hour's time to 105° F. The next day's temperature range was 105° to 103.4° F., the pulse 100 to 60, with the patient violently delirious. The temperature range on December 8th, was 105° to 101.8° F., the pulse 80 to 56, with marked nocturnal delirium. On December 9th the temperature ran between 104.6° F. and normal, the pulse 80 to 54, with nocturnal delirium. On December 10th, the fever ranged from 104.6° F. to normal, the pulse 70 to 50. On the 11th his temperature did not go above 101.4° F. From that time on his course was uneventful, and he left the hospital in very good condition on December 24th. The patient's very slow pulse, away out of proportion to his temperature, was a very puzzling and worrying symptom, as that pulse rate would suggest meningitis. Inquiry later showed that a slow pulse was a family characteristic.

As an illustration of a case showing a perfect clinical picture of sinus thrombosis with corroborative pathological conditions, but with a negative blood culture, the following may be interesting.

CASE V. Mr. W. H., aged twenty-eight years, a patient of Dr. A. E. Munson, was admitted to the writer's service at the Bronx Eye and Ear Infirmary, on the evening of January 8, 1915, when he had a simple mastoid operation performed. His recovery from this was uneventful and he left the hospital in good condition, January 15th. He attended the dispensary for another week to have the wound dressed. He then went elsewhere for treatment, and was not seen again until the evening of February 5th, when he was brought to the hospital, with a temperature of over 105° F., rapid pulse, and looking extremely ill. He had considerable unilateral cervical glandular enlargement, which was very painful on palpation. He gave a history of feeling ill for about twelve days and having had chills and fever for five days. A blood culture was taken next day by Doctor Dwyer. The report on this was received at noon on February 7th; it was negative. In spite of this, the patient was placed on the operating table and the sigmoid sinus freely exposed. The appearance of it was unhealthy. An incision was then made over the course of the internal jugular vein, which was exposed. It was found to be collapsed, and although it was opened accidentally, not a drop of blood came. It was resected from a point just above the clavicle to well above the common facial branch. The sinus was then opened and a large organized blood clot with pus oozing from it was discovered. This was removed and the wound was packed. After the operation the patient did well. He had no chills, his temperature did not go above 102° F., and his general condition was thereafter very favorable.

Otitic meningitis is subdivided by Kerrison into circumscribed pachymeningitis, diffuse purulent leptomeningitis, circumscribed leptomeningitis, and serous meningitis.

In circumscribed pachymeningitis we have small areas of dura involved. This is generally discovered on operation and these areas usually go on to resolution when the diseased bone is removed and good drainage is established. In diffuse leptomeningitis the arachnoid and pia mater are involved and there is no limitation to the process, which spreads widely. The prognosis in this variety is absolutely bad. In circumscribed leptomeningitis we have the same structures involved, but the spread of inflammation is prohibited by marginal adhesions. Some cases of this variety of meningitis have been cured by operative means. In serous meningitis there are congestion and edema of the arachnoid and pia mater without actual infection. The prognosis in these cases is better. Exposure of the dura and multiple incisions, when necessary, constitute valuable means of treatment. The symptoms of otitic meningitis are very similar to those of other forms of meningitis.

Lumbar puncture ought to be practised early. This shows the presence or absence of pus and bacteria. Kopetsky and others have shown that the reaction of the cerebrospinal fluid changes from alkaline to acid in meningitis and that a dextrose which is normally in the fluid disappears.

The subject of brain abscess is in itself such a tremendous one that the writer will be able to give but a very cursory description of the condition. Brain abscess in about eighty per cent. of the cases is secondary to chronic tympanic and mastoid disease. The two principal varieties are the temporo-sphenoidal and the cerebellar, of which the former comprises about seventy per cent. A favorite port of entry for the pus is through areas of necroses in the bony roof over the tympanum and the antrum.

The initial symptoms of abscess of the brain are caused by extension of the pus to the pia mater, and their course is, a chill, high temperature, headache, vomiting. The meaning of these symptoms is generally missed. They subside, to be followed by symptoms of increased intracranial pressure. Kerrison gives these as headache, restlessness, and insomnia, temperature and pulse changes, mental lethargy, inability to exert muscular force, changes in the eye grounds, and gradually increasing somnolence. The temperature at this stage is subnormal or very nearly normal; the pulse is slow and becomes slower as the disease progresses. Sometimes there is muscular paresis or there may be localized paralyses. Aphasia and other phenomena may be present. If the abscess is not evacuated the patient dies from either exhaustion or meningitis caused by rupture of the abscess.

In cerebellar abscess we have often focal symptoms which are of value in diagnosis. The important ones are nystagmus, subjective vertigo, and incoordination ataxia.

In conclusion, the writer would urge the importance of the careful study of each case of purulent otitis so that these complications may be as far as possible avoided by early surgical intervention where it is needed, knowing that in this branch of surgery as in many others the chief danger is in delay. The bacteriological examination of the blood is a valuable indication for surgery, if operation is needful.

1060 CAULDWELL AVENUE.

LANGE'S COLLOIDAL GOLD TEST AS AN ADJUNCT TO THE DIAGNOSIS OF CEREBROSPINAL AFFECTIONS.

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The epoch making discovery, very recently, by Noguchi and Moore of the presence of *Spirochæta pallida* in the nerve tissues of parasyphilitics, proved conclusively that the spirochete was responsible for all these conditions, and made us modify our old time theories of their causation. The two dread diseases, tabes and paresis, have emerged from the realm of empiricism, and their etiology and treatment now rest on a scientific basis. Hence, the importance of diagnosis, particularly in the early stages, becomes evident. It is because of the fact that not only the blood serum but also the cerebrospinal fluid does, in a small percentage of the cases of tabes and paresis, shed no light upon the specificity of the condition, even with our improved methods of technic and with the most sensitive reagents, that we welcomed the test for increased globulin and increased cellular elements in the cerebrospinal fluid, in order to confirm our clinical suspicions of the syphilitic nature of this small percentage of cases that yielded negative results to the Wassermann test.

But as to increased globulin in the spinal fluid, its occurrence in so many conditions not syphilitic, for example, in any of the meningitides, even in the earlier stages, renders these tests of only slight confirmatory value. As to the increased cell count, repeated tapping of the spinal canal, and other infections, also will produce a pleocytosis. This, therefore, like the various globulin tests, is only confirmatory of our suspicions. The recent skin reaction of Noguchi, i. e., the luetin test, is still in its experimental stage, but promises well as an adjunct in the diagnosis of latent syphilitic diseases.

It is no wonder, therefore, that when Lange announced his goldsol test, as one to shed light upon these obscure conditions, that it was eagerly grasped. The principle of this colloidal gold test of Lange is based upon the work of Zigmody, who has shown that a solution of colloidal gold, when brought into contact with certain albuminous bodies in the presence of an electrolyte (such as sodium chloride), would, in proper concentrations, cause a clumping together of the small colloidal particles, producing various changes in color and even precipitation. He also noted that various albumins reacted differently in these respects, i. e., the point at which precipitation and color change would take place. Lange applied this method to the study of the spinal fluid, and while observing the reaction of the colloidal gold chloride solution on the spinal fluid in a case of general paresis, he observed a certain color change, which, when repeated with spinal fluid of other paretics, gave the same characteristic results. The same reaction, but slightly differing in degree, was observed in tabes and so on to the various conditions of the nervous system attributable to lues.

It is essential to the understanding of this test,

that we give a brief outline of the technical method employed in differentiating various proteins occurring in pathological cerebrospinal fluid. It is essential, as for all other chemical and cytological tests of cerebrospinal fluid, that it be obtained carefully and free from the minutest quantity of blood.

TECHNIC.

Materials required: One per cent. solution gold chloride (yellow crystals); two per cent. solution potassium carbonate; one per cent. dilution liquor formaldehydi; ten per cent. solution sodium chloride; a Jena glass beaker, holding 1,000 to 1,500 c. c.

It is important to have a good indicator and, therefore, follow carefully the following rules:

1. All glassware used must be cleansed with acid and then washed in distilled water and dried with heat. Pipettes may be dried with alcohol and ether.

2. To make 500 c. c. of the indicator (a) take 500 c. c. freshly prepared double distilled water, over glass, in a Jena glass beaker holding 1,000 to 1,500 c. c., and heat slowly over wire gauze. (b) When the water is about 60° C., add, while still heating, five c. c. of a one per cent. solution of gold chloride and then follow immediately with five c. c. of a two per cent. solution of potassium carbonate. (c) Heat rapidly to boiling, (d) turn out flame as soon as first steam bubbles appear, and (e) add quickly five c. c. of one per cent. dilution of liquor formaldehydi and immediately begin vigorously shaking the beaker until a change in color occurs, which takes from one half to three minutes. Insert a thermometer into the beaker and get the fluid up to 98° C. to 100° C. to obtain a good color. The change that should occur is, first, a gradual darkening of the fluid with the appearance of a bluish tint, then, a dark blue, changing to a purple, and finally a red. The final solution, if good, should be red, with just a tinge of yellow and a very faint shade of purple. This solution keeps almost indefinitely, if kept clean, and is absolutely clear. Occasionally a deposit is seen on the side of the beaker. Solutions that are slightly turbid by reflected light may be used, but not for fine tests. Purple or murky fluid should be discarded. Use ordinary corks for distilling water, not rubber. We have found that the stock solutions of gold chloride, sodium chloride, and potassium carbonate keep well, but the formaldehyde solution should be fresh.

3. Set up ten test tubes. No. 1 gets 1.8 c. c. and the rest of the nine tubes get one c. c. of 0.4 per cent. sodium chloride solution made up from a fresh stock of ten per cent. solution. To the first tube now add 0.2 c. c. spinal fluid, free from blood or alkali. This makes a dilution of one in ten; after mixing thoroughly with a one c. c. pipette, remove one c. c. and deposit it in the next tube and repeat this procedure to the tenth tube, discarding the last c. c. Thus we have dilutions of one in ten up to one in 5,120. Having made the dilutions, add to each tube five c. c. of the indicator, shake, and let the tubes stand for twenty-four hours before reading the results. It is well to set up control tubes containing only saline solution and Lange's fluid.

Changes of colors as follows: One plus indicates red and red blue; two plus indicates red blue and blue red; three plus indicates violet and dark blue; four plus indicates light blue; five plus indicates clear.

In the syphilitic reaction we obtain precipitation in the first four dilutions, one in ten to one in eighty. In the meningitic reaction, precipitation occurs in the higher dilutions, one in 160 up to one in 1,280.

Eicke (1), after an examination of a large number of cases (323), concludes that all but two cases of tabes dorsalis and general paresis showed a specific reaction, while all cases of tuberculous meningitis showed a specific reaction for the latter disease.

Miller and Levy (2), after 210 examinations, found that all tabetics and paretics gave specific color reactions, and of the cases of cerebrospinal syphilis that they examined, all but two gave a typical syphilitic reaction. Of the thirteen cases of tuberculous meningitis, Miller and Levy found that

twelve gave a typical tuberculous reaction, while one case failed to do so, and these authors conclude that in the early stages of tuberculous meningitis, the reaction is not specific.

Grulee and Moody (3) think that this test is likely to be of great service in the diagnosis of congenital syphilis, not cerebrospinal in type.

Kaplan and McClelland (4), after examining 200 spinal fluids by Lange's method, are of the opinion that the reaction is characteristic in practically all cases of general paresis and tabetoparesis, but less so in other varieties of cerebrospinal syphilis.

Our own experience consists of three cases of paresis, six of cerebrospinal syphilis, six cases of tabes dorsalis, four cases of tuberculous meningitis, seven cases of purulent meningitis, consisting of three cases of meningococcic, two of staphylococcic meningitis, and one of influenzal meningitis, as well as five normal spinal fluids. We obtained a typical syphilitic reaction in all cases of cerebrospinal syphilis and so called parasyphilis, and while some fluids reacted more strongly than others, we could not distinguish the difference between the paretic reaction and other syphilitic reactions, differing in this respect from the findings reported by Kaplan and McClelland. Our findings are, that some of the cases of cerebrospinal syphilis and tabes react the same to goldsol as cases of paresis, i. e., they give a very strong reaction (five plus) in the first three or four dilutions. In two cases of tuberculous meningitis, we examined the fluid during the very early stages, and got reactions; a finding different from that of Miller and Levy.

Our cases of infectious meningitis (tuberculous, meningococcic, and staphylococcic) gave a reaction only in the higher dilutions, the reaction beginning about a dilution of one in 160, becoming stronger until a dilution of one in 1,280 is reached, and then gradually receding to normal. We could, therefore, not differentiate between tuberculous, meningococcic, or staphylococcic meningitis, as all gave similar reactions, but in none of these cases did the reaction simulate that due to syphilis. However, since it is possible for a syphilitic individual to contract suppurative meningitis, it would, indeed, not be astonishing to obtain a mixed reaction in such a patient.

CONCLUSIONS.

1. Lange's colloidal gold test gave specific reactions in cerebrospinal syphilis, tabes, and paresis, as well as in infectious meningitis, while normal spinal fluids gave negative reactions.

2. There was no difference in reaction observed between the various forms of syphilitic infections.

3. Lange's test should, whenever possible, be used as an adjunct in the diagnosis of cerebrospinal affections in conjunction with the Wassermann test, cytological examination, and protein estimation.

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1704 EAST MOYAMENSING AVENUE;
202 RITNER STREET.

HEMORRHAGIC DISEASE IN THE NEWLY BORN TREATED BY HORSE SERUM.*

A Report of Four Cases,

BY A. HYMANSON, M. D.,
New York.

Various hemorrhages are responsible for a great part of the high death rate among the newly born. Infection, syphilis, and hemophilia play an important role in the etiology of hemorrhagic disease. Mechanical causes, such as trauma at birth, difficult and protracted labor, asphyxia, and atelectasis also contribute their quota. It seems nothing definite is, as yet, known about melæna neonatorum. Bleeding from the gastrointestinal tract is a symptom which is due to a variety of causes—in a few of the reported cases an infectious process was found, while in others, there was no evidence of infection. Some observers have found a deficiency of thrombin in the blood, while others did not find diminished coagulability. The rapidity of the hemorrhage and the resulting collapse compel us to act promptly. The treatment consists in checking the bleeding, and in maintaining the strength of the child by replacing the lost fluid, also, in promoting the coagulation of the blood and counteracting sepsis.

The drugs in use are: Epinephrine, calcium, and gelatin—the latter on account of the 0.6 per cent. of calcium it contains. Blood therapy is mostly used.

Epinephrine is a local hemostatic, but when given internally, it increases the blood pressure and tends to increase rather than diminish bleeding. Although we have some favorable reports from abroad concerning the use of calcium and particularly gelatin, still it is a known fact that there is no lack of calcium in melæna neonatorum. Remarkable cures have of late been obtained in all hemorrhagic conditions by direct blood transfusion, subcutaneous injection of human blood,—human blood serum as suggested by Doctor Welch—horse and rabbit serum. Rabbit serum is used because it is easily obtained fresh.

According to Rettger (*American Journal of Physiology*, XXIV, p. 406, 1909) serum loses its active thrombin if it stands for any length of time. Transfusion is quite a difficult operation, as the infant's bloodvessels are so very small. It is also difficult to get a donor—the mother is too weak to undergo the operation and cannot spare a large quantity of blood. The father might be an ideal donor, but he is not always at hand and not always willing to give the blood. It is not so easy to obtain a healthy stranger at the moment, one whose blood would not cause hemolysis; the expense is also an item.

Subcutaneous injection of human blood or human blood serum is administered more easily, but it is difficult to obtain, as we require from forty to fifty c. c. of serum or 120 c. c. to 150 c. c. of blood, although in maternity hospitals, blood or blood serum could be obtained from the placenta. Placental serum is obtained by allowing the blood from the cord to run in sterile flasks and centrifugating. Ac-

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cording to Franz, of Graz, the serum may be kept as long as four months, but it must be sealed with a few drops of chloroform, as a protective layer. But here again, a Wassermann test must be made to exclude syphilis.

Fresh animal serum, just like human serum, contains all the ferments of the blood; it acts by its nutritive and bactericidal power, and it hastens coagulation. It is found very useful in hemorrhages of the newly born. Encouraged by this result, I have used horse serum in four cases of *melæna neonatorum*. Three of these ended in recovery—the fourth fatally—although I used both horse and human serum. I shall now briefly describe the four cases:

CASE I. G. T., male, aged eight days. Mother's history: First pregnancy was concluded at the Jewish Maternity Hospital by Dr. A. J. Rongy. The family history was negative. Mother's urine contained traces of albumin—her blood showed a marked polycythemia—7,200,000 erythrocytes. Coagulation time was seven and one half minutes. Wassermann reaction was negative.

Child was born at full time, weighed seven pounds, breast-fed, was apparently well until the fifth day, when the navel began to bleed and there were occasional purpuric spots on lower extremities. The bleeding continued on the sixth and seventh days. Calcium lactate was administered without improvement. On the eighth day, the infant vomited a great deal of blood and he had several profuse hemorrhages from the nose, mouth, and bowels. He had subcutaneous hemorrhages, some of them the size of a quarter of a dollar, on both sides of the thorax, back, and lower extremities.

The baby was very pale and weak and did not nurse. We gave him mother's milk with the spoon. In the evening, I found him in a moribund condition. Temperature, 97.5° F. Pulse could not be counted. Spleen palpable and liver normal size. Coagulation time of infant's blood, eleven minutes. I injected, subcutaneously, twelve c. c. of normal horse serum. On the morning of the ninth day, there was some improvement, but the bleeding from the rectum still continued. I then again injected twelve c. c. of horse serum—in the evening, an additional fourteen c. c. was administered—making thirty-eight c. c. in all. On the tenth day, the bleeding stopped completely and the child's temperature became normal. He began to nurse, and kept on getting stronger. He was discharged from the hospital shortly after, in perfect health, and retained his health.

CASE II. Baby, S. G., was born in the Jewish Maternity Hospital on September 10, 1914. She was the first child of healthy parents, full term, normal labor. Profuse bleeding from the mouth and rectum began on the second day. Coagulation time of the blood was about twelve minutes. Her temperature was 97.6° F. We injected subcutaneously fifteen c. c. of normal horse serum. On the third day, the bleeding from the rectum still continued and the baby looked very weak. Another injection of twelve c. c. of horse serum was administered and within eight hours the bleeding stopped completely. On the following day, the stools were normal. The baby rallied slowly, the temperature became normal, 99.5° F., and was discharged on the thirteenth day in a normal condition.

CASE III. Baby G. was born in the Jewish Maternity Hospital. Second child, female, full term, labor troublesome on account of placenta prævia marginalis. Family history, negative.

On the fourth day, November 2, 1914, the baby had about five hemorrhages from the rectum and vomited a small amount of blood. She was given subcutaneously fifteen c. c. of normal horse serum. On the fifth day, the bleeding from the rectum still continued, but not so severely as on the previous days. Another dose of fifteen c. c. of horse serum was injected, and in a few hours the bleeding was checked completely. The child was discharged in good health on the thirteenth day.

CASE IV. Male, born in the Jewish Maternity Hospital, July, 1914; family history was negative. Labor was protracted; baby was born asphyxiated—he was resuscitated.

The infant was doing well until the fourth day, when his temperature arose to 101.5° F. He cried very much, refusing to nurse. In the evening, he passed much blood from his bowels, and also vomited blood. The mother's nipples were not chapped and the infant's mouth and nose were normal. Two grains of calcium lactate were given every two hours.

The house physician administered twelve c. c. of normal horse serum. The bleeding still continued during the night. On the following morning, I found the baby in a precarious condition. His face was blanched, his pulse could not be counted, and he refused to nurse. I urged the mother to allow me to take some of her own blood. I then injected twelve c. c. of the mother's blood in the infant's back. The infant did not respond to treatment and died that evening. An autopsy was refused. The horse serum was furnished by the Department of Health of the City of New York.

Now I wish to add a few words about anaphylaxis. The use of horse serum as a medium for various antitoxins has shown, conclusively, that the dangers of serum sickness and serum death have been greatly exaggerated. Serum sickness, as a rule, is a very mild affection, lasting only a few days. Serum death is a rare occurrence, Doctor Probasco (*New York State Journal of Medicine*, January, 1912) avers that there is only one death in 25,000 injections of diphtheria antitoxin.

Holt (*Diseases of Infancy and Childhood*, 1911, p. 1,000) says the evidence that antitoxin was the cause of death, has not always been conclusive. In some of these cases, autopsy has revealed a status lymphaticus not before suspected. Almost all deaths occurred in patients during adolescence, or in asthmatic adults.

CONCLUSIONS.

1. Coagulation time of the blood is somewhat delayed.
 2. As there is always a difficulty in obtaining human blood or fresh human blood serum—fresh horse serum or rabbit serum will serve the purpose almost as well.
 3. In the newly born infant, where the bleeding is not spurious, the horse serum should be administered early and repeatedly until bleeding ceases.
 4. The report of injurious effect that is occasionally caused by foreign serum is greatly exaggerated.
- 50 EAST NINETY-SIXTH STREET.

Sugar Solution Proctoclysis in Postoperative Treatment.—C. M. Barbee, in *Northwest Medicine* for September, 1914, states that physical condition, in surgical cases, often precludes the early administration of water by the mouth, notably after operations on the stomach and intestinal tract and in fracture of the skull, where unconsciousness and vomiting may persist for a long time. Yet maintenance of proper fluidity of the blood is among the most important essentials in satisfactory postoperative recovery. Salt solution by rectum is slightly irritating, while a solution of cane sugar, one half ounce (15 grams) to one quart (litre) of water, is both practically nonirritant, is rapidly absorbed, and seems to exercise a general stimulating effect. Upon careful observation and comparison in a wide range of cases the author is convinced that postoperative shock is lessened, the circulation quickly equalized, vomiting diminished, renal excretion increased, by sugar proctoclysis.

HYSTERIA AS A CONSTITUTIONAL DIS-
ORDER.*BY HARRIET C. B. ALEXANDER, A. B., M. D.,
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(Concluded from p. 1225.)

Hysteria once disputed with epilepsy the title of *morbus sacer*. The priests, the priestesses, and the medicine men threw themselves into trances and convulsions for communication with spirits. With the rise of organized faiths the prophetess or prophet dropped into a wizard or witch. The belief in witchcraft still continues. Seventeen years ago an epidemic of witchcraft broke out in West Virginia which illustrates medieval beliefs which were supposed to have disappeared. As in the Salem and other epidemics, a number of children had chorea. This was ascribed to witchcraft, and the local witch finder was called into action. Using the old pricking test, which is still popular among many physicians as a test of organic anesthesia, he designated an old woman as the witch. She was driven out into the mountains and perished. The children still continued to be afflicted; then the witch finder resorted to a test still used in Western Europe and in certain districts of North Carolina, Pennsylvania, and the foreign sections of American cities. He placed the nails and hair of the choreics, together with horse shoe nails, in an iron bottle with water. This was swung over a lamp and was supposed to dart toward a door where the witch would enter. Instead, it blew up, whereupon the witch finder was accused of being a wizard. The popular excitement was so great that the Governor of the State had to send down two companies of militia and four physicians, the chorea epidemic having spread extensively among the children. Under medical care the epidemic disappeared. It was found afterward that the old woman used a crude mixture of charms and herbs. She gave charms for disease, charms to bring back lost lovers and to insure good fortune, charmed away warts, and in that way performed the superstitious functions of the old "white" or benign witch (11).

Belief in witches is endemic among Americans of Pennsylvania-German origin, and from it the witch doctor still reaps a large harvest in Pittsburgh and other Pennsylvania towns. Witchcraft by itself, however, was not until comparatively lately a penal offense. In England, under the English law precedent to January 1, 1607, witchcraft was punishable only when it was shown to have caused death, by the rules of evidence of the common law. By a law passed at the instance of James I, modelled on the Roman law of Scotland and Continental Europe, witchcraft became an offense triable by the inquisitorial procedures of the Roman law which compelled the witch to prove her innocence. A belief in witchcraft thenceforth became an aristocratic and society doctrine. The witch finder who pricked witches and used other tests was a popular official. It is a singular illustration of the influence of hysteria that many of these witch finders were latterly proved by

their own tests, wizards, and hence hysterics. The famous witch finder, Hopkins, tried by his own tests of pricking, was found to have the baptism of the devil, that is, to have analgesia of various parts of the body. Used as a test of anesthesia, as it is too much today, it was really a test of analgesia, since common sensation was retained while the pain sense was lost. It is a singular illustration of how medical science protects humanity that over a decade precedent to the accession of James I, Dr. Reginald Scot (12) proved that the victims, the wizards, and witches were afflicted with hysteria. His work, however, did not begin to prevail until the foundation of the Royal Society (13) under the Commonwealth. Even then, fashionable physicians like Sir Thomas Browne, so much lauded by Osler (14), declared nearly a century after Scot, that anyone who denied witchcraft was not merely an infidel but an atheist. That there should have been a witchcraft epidemic in Salem, Massachusetts, during the last decade of the seventeenth century was quite natural under the conditions described in *The Scarlet Letter*. Dr. Cotton Mather was at once ahead of his time, so much so as to believe in the germ or animalcular origin of disease and on a level with it, as the witchcraft epidemic of Salem, Massachusetts, shows (1698). Although the judicial executions of this epidemic are continually regarded as an evidence of Puritan ignorance, it must be remembered also that although when Giles Corey was pressed to death for refusing to plead to a witchcraft indictment, the whole community repented the folly into which they had been plunged, Cotton Mather nearly lost his life in the attempt to introduce inoculation as a prophylactic for smallpox. The last judicial execution for witchcraft occurred in Bavaria, in 1810, when a woman was burnt for this offense on sentence of one of the higher judges. The belief in witchcraft, however, survived in seemingly cultured circles in New England, became the support of what were called metaphysical physicians, from one of whom, Quimby, Mrs. Eddy plagiarized the Eddyist bible, *Science and Health*. The Eddyist cult sprang largely into public notice by attempting to have a man indicted for murder by malicious animal magnetism (15). The prosecution was venomously conducted, but failed.

Eddyism is the old demonology and "white" witchcraft united and mobilized. There are two principles in Eddyism, the benign principle—spiritual creativeness—and the malign principle—malicious magnetism. These two principles are equal in power. Both of them are capable, according to the cult, of causing immaculate conception or parthenogenesis (virgin generation). Mrs. Eddy's life and history, as given by Quimby, her metaphysician, shows her to have congenital hysteria complicated by railroad traumatism. Beside the Shakers and the Eddyists, seven sects were founded by hysterics. The Bonvignonists, Buchanists, Philadelphians, the Cottians, the Victims, the Universal Friends, the Wilhelmenians. All these sects are more or less modified Christianity. Madame Bonvignon was so deformed at birth that there was some question of destroying her as a monster. She was a Belgian and had the Quaker doctrines of "the spirit moveth" and the abolition of ceremonial worship. This sect for a

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time spread quite widely in Belgium, Holland, and Germany, but died out with the death of its founder.

Mrs. Buchan, of Glasgow, Scotland, maintained that she was the woman of the Apocalypse and would lead her followers to heaven without dying. On her death her sect disappeared. The Philadelphians were founded by the hysteric, Jane Leadley, about 1697. The doctrines were similar to those of the Bonvignonians and attracted a number of mystically inclined learned men. After her death the sect survived till the middle of the eighteenth century, and left its traces on many of the German, French, and English mystics. In 1801, Johanna Southcott, a hysteric, said she was with child by the Holy Ghost. Her pseudocyesis persuaded a great many people of its truth, including some mystically inclined physicians. Funds were subscribed largely; a cradle with silver gilt and pearl ornaments was prepared for the redeemer who was to be born. Even after her death, when an autopsy showed she never had been pregnant, it was believed that she would return, and this belief lasted till the middle of the nineteenth century. She attracted artists, physicians, clergymen, and judges of a mystical turn of mind.

Madame Brehan, in the eighteenth century, founded the society of Victims, which had doctrines similar to those of the Flagellants. She resembled very closely in her visions and hysterical antics the Florentine Carmelite, Magdalen of Pozzi, who, in the sixteenth century, in the Roman Church obtained a large following, and but for a hostile Pope would have founded an order. It was her greatest joy to have the prioress tie her hands behind her back and whip her on her loins in the presence of all the sisters. The Universal Friends were founded by Jemima Willheuson in Pennsylvania, in the eighteenth century. She had trances and visions in childhood, became "inspired," and able to work miracles, seceded from the Quakers, and founded a town called Jerusalem. Like Mother Eddy, she became wealthy through her followers. After her death, as there was no mobilization of her sect for commercial purposes, it soon disappeared. The Wilhelminians were founded by Wilhelmina, a Bohemian woman, in the thirteenth century. She, after the usual hysterical trances, dreams, and visions, announced that she was an incarnation of the Holy Ghost, and that through her was salvation for Jews, Saracens, and heretics, as well as orthodox Christians. Not only have hysteric Victims founded sects, but they formed, whether male or female, a large proportion of the various cults and charlatanism. There have been epidemics of hysteria after religious orgies of the revival type in all countries. At the close of the eighteenth century, they marked the religious revivals in the United States, especially those conducted by the Methodists. The power of the Holy Ghost was shown in the "holy laugh" which spread through a congregation, in wild dances and in hysterical convulsions (16).

In France and Italy, from 1860 to 1900, Jesuit missions were attended by similar hysteric demonstrations. Hysterical manifestations of other types also occur. In 1894, in a village near Berlin, an epidemic of hair clipping, window smashing, and soiling of doors and porches occurred. The police

were long at fault. Finally a scrawl was posted on a church door with the following:

We are thirty,
At night we're spy,
Out of the window we mock the passer by,
Just now the hair off we clip,
Later the head off we'll snip.

At length, a series of hysterical convulsions occurred among young girls of the village, who admitted responsibility for the tricks and for the scrawl. A short time before the outbreak of the epidemic they had been confirmed or received the first communion (17).

DIAGNOSIS.

The diagnosis of hysteria is an exceedingly difficult problem, because of its close mimicries of organic disease, its complications of organic disease, and the organic diseases secondary to it. At the outset, simulation, whether of hysterical origin or mere malingering, should be separated from hysterical disorders. In one of the great Chicago simulation cases (18) the woman worked the old dodge of recovery by divine aid on the Salvation Army, until the army was satisfied she was malingering. She then averred that she had sustained a railroad accident, the responsibility for which was doubtful. She won the sympathies of a female eclectic, who took her to her country home. Suit was instituted, and the neighborhood and the newspapers were kept busy by mysterious and unaccountable persecutions by the railroad company. At the time these persecutions were occurring, the woman alleged that she was suffering from paraplegia which prevented her walking. When the newspapers ceased to take any interest in the case, the paraplegia disappeared for a time. When the case was called, it reappeared and she sat in the courtroom in an invalid chair. She then said she had lost all the power of one side and was blind on that side. The Snellen color test, which would have failed in hysteric amblyopia, showed normal vision in the blind eye. The reflexes were normal. While the pain test was positive, the other tests for sensations revealed normal conditions. Hysterical anesthesia was noticeably absent. The first two juries found for the plaintiff and the case was appealed. After retrials, the case was finally remanded by the Appellate Court on the finding of fact, which means that in the opinion of the Appellate Court the facts do not justify the verdict and the case cannot be retried. The blunder was made by the railroad of confounding hysteria and simulation. The jury therefore recognized hysteria as a real disorder, and as the evidence was not directed to show her previous condition of health, held that it was due to the accident. After a time she was convicted of perjury and given a penitentiary sentence. Her mixture of hemiplegia and paraplegia continued while in prison. On her release she fell into the hands of a sympathetic oophorectomist of the hyphen American variety, who "cured" her by oophorectomy as well as she had been "cured" several times before. As has been repeatedly shown by the "horses" of the traveling hypnotist, the same stoicism with regard to pain occurs in malingerers, and does not necessarily indicate analgesia. Indeed, a "horse" gathered a crowd for pickpockets by thrusting a sharpened

knitting needle through the skin of his forearm. What seems to be analgesia is therefore often present when anesthesia, either of local nerve type or of the hysteric band type, is absent.

The normal character of the reflexes is opposed to a diagnosis of hysteria. The reflexes will either be exaggerated or in cases complicated by autointoxication, greatly diminished or even absent. Hysteric amblyopia will no more respond to the ordinary tests than the other amblyopias, whereas simulated blindness will. What is true of sight is also true of hearing.

Hippus, chorea iris, or rapid dilatation and contraction of the pupil, while a frequent symptom of epilepsy (18), has not been found in hysteria. The hysterical tendency to spastic states led Charcot, in 1888, to state that all hysteric paralyses of the facial, lingual, and oculomotor muscles were really hemispasms. Cases observed by Hitzig and others, as well as some later observed by Charcot, forced Charcot to abandon this absolute position. Not only does unilateral eyelid ptosis occur in hysteria, but bilateral likewise, although very rarely. Conditions of the visual field in hysteria do not differ, as Hitzig has shown, from those occurring in neurasthenia and nerve fatigue.

Homonymous hemianopsia has been stated to be characteristic of organic brain disease. As it has been shown to exist in migraine, it is not surprising to find that J. Volobra (19) has demonstrated its existence in hysteria. Here it has persisted for a couple of months, to disappear under a strong mental impression. As in migraine, mathematical figures appear before the eyes of the hysteric. Unlike the victim of migraine, however, who is worried by their appearance and fears that he is "seeing things," the hysteric gives them a mystical significance and regards them as a testimony to her importance.

Globus hystericus and the hysterical cough have often led to diagnoses of laryngeal states. The hysteric cough has been diagnosed as the hacking cough of tuberculosis. This diagnosis has been seemingly justified, in some instances, by the microscopic findings of alleged tubercle bacilli without culture medium tests. Sudden disappearance of the cough, either from a moral influence or from the change of surroundings due to climatotherapy, has revealed the error in diagnosis. The characteristic afternoon rise in temperature of tuberculosis was absent. Cases of this type explain the numerous alleged cures of conditions diagnosed as phthisis by physicians, through relics, Eddyism, patent medicines, and by various cults and charlatans. In some cases, as already pointed out, pulmonary hemorrhage may occur in hysterics. This, while resembling the gouty hemorrhage, differs in causing no destruction of lung tissue. Numerous cases have been reported like that cited from Watson, where marriage has resulted in a seeming cure of the pulmonary hemorrhage. Bronchorrhagic states occur, giving rise to pulmonary dullness which disappears with great rapidity. As with other constitutional neuroses, cardiac disorders occur, varying from temporary murmurs to pseudoangina pectoris. As the underlying factor of this is a temporary type of the conditions precedent to coronary arteriosclerosis, the

treatment and sometimes the terminations are similar. Amyl nitrite acts more quickly in hysteria than in the arteriosclerotic stage of angina pectoris. The conditions affecting the kidney are those of suppression of urine, and its secondary states. Except for their sudden inception and their frequent appearance and disappearance under psychic impressions, these conditions do not differ from those of the non-hysteric type. Frequent recurrences of hysterical suppression of urine may lead to nephritis, usually of the interstitial type. When established these posthysteric nephritides do not differ from those due to other causes. Hysteria produces the same vasomotor ataxia in the liver that it does in the kidney. Interference with glycogenesis produces temporary glycosuria. Interference with the hepatic excretion of urea may not only cause the disappearance of urea from the urine, but likewise produce uric acid, urates, and allied bodies. Jaundice, of the type known as emotional jaundice, often appears in hysteria. It often results from jealousy, envy, vanity, etc. As already pointed out, hysteric hepatalgia mimics gallstones to such a degree as to deceive gallstone diagnosticians. Of course, gallstones are more frequent among the insane, hysteric, and neurotic, hence in diagnosis, intercomplications have to be taken into account.

Pelvic disorders have been much abused in the treatment of hysteria. The mental impression of operations has been here, as elsewhere, temporarily beneficial. The differential diagnosis here involves chiefly a question of etiology.

All joint and spine disorders are mimicked by hysteria. The diagnosis should turn on the onset, on the effects of training and suggestion, the absence of secondary results, although these require to be carefully sifted, rather than on duration. The attempt to diagnose by class, as was urged by Brodie, would lead to serious blunders. It is forgotten that Charcot's epoch making work was done on a pauper class in the Salpêtrière. Anesthesia is of value only as a corroborative factor. Spastic conditions due to actual joint disease will be relieved while the effect of the anesthetic lasts; hysterical contractures will also be relieved, but unless a strong mental impression is made, on recovery from the anesthetic, the condition will return.

The child has a nervous system similar to that of the hysteric—in the one the inhibitory function has not been completely developed, in the other it has been weakened or destroyed or fatigued, or has never fully developed. While hysteria in children was very early recognized, still as Hecht (20) points out, a good many pediatricists, like Holt, deny that hysteria is a disease of childhood. As Holt also denies the existence of postdiarrheal coma or hydrocephaloid, it is evident that he is obsessed by gross lesions in his diagnosis. Of course, manifestations like those of hysteria in onset, disappearance and reaction to psychic influences are, so to speak, relatively normal in childhood. There are, however, true hysteric constitutional conditions in children. Many are developed by improper education. The diagnosis between those manifestations which are the result of imperfectly developed inhibitions in children, and those which are the result of an actual hysterical constitution incapable of development,

must turn on their reaction to training and to, in the most general sense, psychotherapy. There is one difference, moreover, which is of value in diagnosis. The nonhysterical cases show a greater tendency to motor reactions, with an almost complete absence of sensory reactions. The hysterical cases show much the same disturbances that grown hysterics do. The camel's hair pencil test of sensation will arouse the normal ticklishness of the nonhysterical child, while in the hysteric, it will reveal bandlike patches of anesthesia of the adult.

Etiology is governed by the law of the etiological moment. The effect of a given cause is always dependent on the congenital constitution affected, on the state of that constitution at the time the exciting cause is applied, and the nature and extent of the cause. In no disorder has this law been so much ignored as in the study of hysteria. The statistic method has been worked to death in all its crudity. It has been for the interest of all sorts of charlatans and shallow thinkers to ignore everything but the alleged exciting cause.

The first question to consider in hysteria, is the congenital constitution and the state of the constitution which has survived the periods of stress. The mass of hysterics come from defective stocks; a lesser, but by no means small proportion, acquire hysteria through the shocks of accidents, of heat, insolation, electrization, moral, psychic, and physical strain. The exciting causes never produce hysteria, but they bring hysterical manifestations strongly into evidence. Without the predisposing factor of the constitution, all exciting causes would be without effect. During the closing years of the nineteenth century a new sexual school arose (21). This charged sexual shocks with not merely causing hysteric manifestations, but with producing hysteria itself. Breuer, who with Freud started this school, cites as typical the case of a seventeen year old girl who had her first hysterical attack after a cat sprang on her shoulders as she went down a dark stairs. The girl had been the subject of ardent attentions from a young man whom she had resisted, although her sexual emotions had been aroused. A few days before the cat episode she had forcibly escaped from the young man on the same stairs. To this escape Breuer refers the hysteria. Here the previous condition of the girl is not analyzed and subjected to the control test of hundreds of girls who have had similar experiences, and yet have never developed hysteria. It is held by this school that the primary shock remains as a foreign body in consciousness, that here it acts as a source of hysterical paralysis, hysterical contractions, and other hysterical manifestations. At the bottom of every case of hysteria and reproducible after an interval of years, may be found one or more facts of previous sexual experiences belonging to early youth. The methods employed ignore the suggestibility of the hysteric recognized by the vast majority of neurologists and alienists. The sexual shocks found as foreign bodies in consciousness by the psychoanalytic method are indistinguishable from those producible in any hysteric by leading questions. Even the more intelligent police have learned to avoid leading questions in cases of hysterical charges. The dangers to the public of such

psychologically illogical methods cannot be overestimated.

Among the cases reported by Freud and his followers, here and abroad, are instances where one hysterical manifestation is traced to a rape by her father; another manifested by the same subject, to coitus with a brother; a third manifestation by the same subject to masturbation by the mother and the passion stage of the hysterical convulsion to rape by the family physician. Here it is evident that the suggestibility due to sexual preoccupation of the hysteric was so worked on by the questions of the psychoanalyst as to produce "foreign bodies" in sufficient number and relation to account for successive hysterical manifestations. Mental catharsis, as the process of removing these foreign bodies is called, would undoubtedly have beneficial effects at the hands of the suggestor of the "foreign bodies." The production of the "foreign bodies" closely resembles the production of illness by the advertising quacks.

The symbolism for sexual objects devised by the Freudians has an unholy resemblance to the symbolism of decadents and paranoiacs. Stealing of a girl's gold watch on the theory that it resembled the sexual organs of the owner seems somewhat quaint, to say the least, yet this is given as an actual Freudian *kleptomania*. It cannot be advanced, however, that the watch was stolen as a fetish, since the boy sold the watch and used the proceeds for enjoyment. Perhaps this symbolism has been pushed to its greatest extent in the interpretations of dreams (22).

Every available object in common use is interpreted as a heterosexual symbol, and when this is not possible, as a homosexual. Despite the careful observations of Maury, O'Day, and others on the influence of external objects on dreams, all dreams have to the Freud school an internal sexual significance due to "foreign bodies" rising into sleep consciousness. The whole doctrine of this sexual school is destitute of psychological, physiological, or neurological basis. It is a revival of the old reflex quackery in a new form.

Insolation, traumatism, electrization, heat, and essential fevers, as well as mental strains, create a nervous adynamia which weakens the acquired inhibitions and creates the excessive responses to slight excitants.

Pathological anatomy of hysteria (23), like pathological anatomy of similar constitutional neuroses, including most of the acute psychoses, is biochemical and not demonstrable microscopically or macroscopically on necropsy. Secondary sclerosis may result from hysteria in consequence of disuse or of circulatory irregularities. In congenital cases the same teratological defects occur as in the congenital neuroses and psychoses.

TREATMENT.

The therapeutics of hysteria consists essentially in the treatment of the patient as a whole rather than of any individual symptom. Of course, the large proportion of patients have disturbances of metabolism and autotoxic tendencies. While removal of these will not cure hysteria, it will tend to strengthen the inhibi-

tions. Hysterical patients often have so unrestful sleep from dream states that they regard themselves as completely insomniac. Here all the habit forming drugs should be avoided. Cumulative drugs like sulphonal and medinal in combination with motor sedatives like conium, hyoscyamus, and passiflora, should be given so as to secure the cumulative effects of small doses between one and four a. m. It will be found advisable, at times, to quiet the local erethism which rises into consciousness in the dream state by monobromated camphor and salix nigra. The patient should not be told the significance of this local erethism. Despite her sexual preoccupation, she may never recognize the sexual nature of this erethism. All local irritations should be removed. No stress should be laid on any organ or organs as a cause of any hysterical symptoms.

In hysterical blindness and deafness amyl nitrite inhalations are often beneficial. In the early period of hysterical convulsions these are useless. In the later stage, they are often of value. Morphine should never be used in hysterical convulsions. The patient should be removed to a room by herself and left alone. The same treatment should be applied to acute hysterical psychoses, but the possibilities of window smashing and furniture breaking should be remembered. In the heart pains mimicking angina and the similar pains mimicking gallstones and ureteral calculi, amyl nitrite should be freely given by inhalation. It has, in addition to its therapeutic effects on spasm, a very good moral effect on the patient, and can never be a habit forming drug.

In menorrhagia, which also frequently occurs in hysteria, it is also of great value. The hysterical is, as a rule, better treated away from home. To some extent the influence of this separation from environment is seen in the "cures" at shrines and watering places. In cases where electricity finds its usual indications it will be found beneficial in hysteria. Occasionally for its moral effect, it should be used in paralyzes and contractures. Sometimes faradization of the chest muscles will remove the patient's tendency to recurrent dyspnea. The same is true also of the sense of suffocation felt by certain patients with the globus hystericus. If the paralysis has been of long duration and there is a tendency to wasting of the muscles, faradization will be found of much value. Autointoxication should be treated along the usual line of autotoxic states. Sometimes hysterical convulsions are preceded by long continued abnormally low or abnormally high degrees of acidity. In such cases large doses of sodium bicarbonate will be of service as a prophylactic for the convulsions. As there are great tendencies to peristaltic irregularities, eserine salicylate should be used in cathartics. In a word, in hysteria, the patient, not the disease label, should be treated.

The jeremiads about increase of hysteria in the nineteenth and twentieth centuries display the usual lack of historical perspective that marks the special pleader for practice miscalled a medical scientist. Under the title of the "vapors," hysteria was rife in the sixteenth and seventeenth centuries. It was a fashionable disorder and so long remained. According to Catherine Beecher (24), who fairly represented New England and the South, nosophobia and the ill health pose were characteristic of middle class

women eighty years ago. No one nowadays would say, even of society and middle class women, that only one out of ten would admit being healthy. New occupations for women, or rather old occupations revived in modified form, have furnished an outlet for that womanly energy which is so often regarded as hysteria, but to which the race is indebted for all progress other than in war, hunting, and fishing (25).

With the increase of hospitalization of nervous diseases, the hysterical victims, formerly the vampires of home, have been gathered together and counted. On the other hand, the increase of physical training has diminished the effect of the periods of stress. This is observable in literature. The pallid, delicate, hysterical heroine of mid-Victorian literature is no longer a favorite, but an unreality. The girl who hunts, swims, rows, plays tennis and golf has taken her place.

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15 EAST WASHINGTON STREET.

Abstracts and Reviews.

FOOD VALUES IN HEALTH AND DISEASE.

BY OLIVER T. OSBORNE, M. D.,

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The hygienist and the clinician must be interested in all scientific data that show the actual working values of food, hence this brief review of the calorimetric work already done at the Russell Sage Institute of Pathology and at Bellevue Hospital, New York, is here offered.

This research work is presented in Part II of the *Archives of Internal Medicine* for May, 1915. The introductory article is written by Professor Graham Lusk, who defines the respiration calorimeter as "an apparatus designed for the measurement of the gaseous exchange between a living organism and the atmosphere which surrounds it, and the simultaneous measurement of the quantity of heat produced by that organism." The nucleus of such an apparatus was first described by Lavoisier, in 1780, while the respiration apparatus of Pettenkofer and Voit was not completed until 1862. Lusk says that the accepted standards for heat values of proteins, carbohydrates, and fats were presented by Rubner, in 1885, working in Voit's laboratory. In 1877, Atwater began his well known investigations on food values, and Rubner, in 1894, "built the first successful respiration calorimeter." Atwater, in 1892, began to measure the heat production in man, and, in

1894, the United States Government began to appropriate funds for nutrition investigation, and soon developed the Atwater-Rosa calorimeter, which demonstrated that the estimation of the heat given off from an individual under certain diets and certain conditions as an indicator of food values agreed with the estimation by examination of the feces and urine under the same conditions of food and activity. With improved calorimetric apparatus, not only can the carbon dioxide output and the heat production be measured, but also the amount of oxygen absorbed can be determined.

With the Russell Sage Foundation and with the cooperation of Bellevue Hospital, most perfect calorimetric equipment has been instituted. Lusk and his coworkers have ascertained that three or four hours of consecutive observation on a patient who lies comfortably in this apparatus during this length of time, will suffice to indicate the influence of ingested food on his metabolism. Briefly, the apparatus consists of two parts, one for measuring the gaseous exchange, the other for measuring the heat production. This apparatus is so delicate that it has been found that if a person moves even so much as an arm during certain periods of the observation, the heat given off from the body is increased. With this apparatus, then, the carbon dioxide output and the oxygen intake are accurately measured, while the water vapor output may be very closely determined. In fact, Riche and Soderstrom (page 828 of May number of *Archives of Internal Medicine*) state that when an observation on a patient extends from three to four hours the heat production, the carbon dioxide elimination, and the oxygen consumption may be measured so accurately that there is an error of only 0.9 per cent. in the heat production, of 0.6 per cent. in the carbon dioxide elimination, and 1.6 per cent. in the oxygen consumption.

Bellevue Hospital has established a ward of five beds especially adapted for the investigations of Lusk and his coworkers. These patients are cared for by three graduate nurses trained in metabolism work, and the diet kitchen of this ward is entirely under their supervision. The preparation of food, and the collection of excreta, as described by Gephart and E. F. DuBois (page 829) is so accurate as to keep all errors within one per cent. The patients under observation are practically never out of the sight of the nurse in charge. All the food administered to them is prepared by these special nurses, generally from raw materials whose composition is accurately determined from time to time. A patient on entering the ward is studied for two days to determine his dietetic limitations and his dislikes, as these items are considered of great importance in the determination of the food that he shall receive and in studying his metabolism. These skilled nurses then decide upon a diet that is most acceptable to the patient that shall contain "3,000 calories, fifteen grams of nitrogen, one half nonprotein calories in fat, one half in carbohydrate."

The methods devised for collecting the urine and feces, both for ambulatory patients and for those who are confined to bed, are those that allow of the least possible disturbance and the least possibility of errors in handling and transportation. Powdered

carmine, administered by the mouth, has been found to be better than charcoal in determining the different fecal periods.

The patients studied in pathological conditions have been as much as possible confined to men between the ages of twenty and fifty years. A basis for estimation, called "basal metabolism" for normal individuals has been determined to be best obtained in the morning, from fourteen to eighteen hours after the last meal, with the individual at complete rest. These investigators, Gephart and E. F. DuBois (page 866) have determined that 34.7 calories to the square metre of the body surface is the average heat production of normal men between the ages of twenty and fifty years. "Therefore, if the heat production of a given patient with some pathological condition is more than ten per cent. above or below the average, it may be regarded as abnormal, but cannot be proved abnormal unless the departure from this average is at least fifteen per cent." They also conclude that "among groups of men of varying weights, metabolism is proportional to surface area, according to Rubner's law, and is not proportional to body weight." Ordinarily they found the rectal temperature to indicate the mean temperature of changes in the body; however, this was found not to be true in typhoid fever, the surface thermometers giving a better indication of the mean body change.¹ It was found that "200 grams of dextrose, or its equivalent in commercial glucose or a casein meal with 10.5 grams of nitrogen increased the heat production about twelve per cent. over a period of three to six hours."

D. DuBois and E. F. DuBois (page 868) have shown that Rubner's law which was presented in 1883 is correct, viz., that the heat production of individuals is proportional to their surface area. The average heat production to the square metre of body surface is about 1,000 calories a day. They have found that the surface area of the body may be determined by pasting paper over the individual's tightly fitting underwear. The area of this mould is later determined by cutting it in pieces and printing a pattern on photographic paper, then cutting out the pieces of the pattern and weighing them. Their investigations show that in thus measuring the surface of patients of widely varying shapes the average error was 1.7 per cent.

Coleman and Gephart (page 882) have studied seven cases of typhoid fever on the high calory diet long urged by Coleman. These observers determined that there are no differences in the percentage absorption of fat in the early and later stages of the fever or in the first week of convalescence. Coleman and E. F. DuBois (page 913) studied the heat production in typhoid patients both by direct and indirect calorimetry in a series of sixty-one experiments, and the two methods agreed closely. They found that "in typhoid fever protein, fat and carbohydrate are oxidized to the same or approximately the same end products as in health, and in their oxidation give off the standard amounts of heat." Hence the advisability of conserving these fever patients with foods rich in carbohydrates. They found

¹The writer of this abstract has long noted that in typhoid fever the rectal temperature is not as accurate in determining the condition of the patient as is the surface temperature.

that the basal heat production rises and falls in a course roughly parallel with the temperature. "In a majority of cases a rise in temperature is accompanied by an increasing heat production and an increasing heat elimination. They found that "typhoid patients can store body fat on an abundant diet while losing body weight and body protein. The loss in weight and loss in protein is usually, but not necessarily parallel." They conclude that there is "a toxic destruction of protein in typhoid fever." This was "shown by the patients' losing nitrogen, even when their diet contained enough calories to cover the heat production."

Professor Graham Lusk will soon present some valuable data on calorimetric studies in diabetes. Also, clinicians may expect valuable suggestions as to the proper food for patients with various diseases from future investigations made, with the foregoing calorimetric equipment, by the above mentioned corps of skilled investigators.

252 YORK STREET.

Therapeutic Notes.

Neosalvarsan in the Treatment of Tabes.—Nicolas and Pillon, in *Lyon médical* for July 12, 1914, express the opinion that the administration of neosalvarsan in tabes, since it frequently brings a distinct relief from the symptoms, should be given preference over all other therapeutic measures in this disease. In a case which they report, the patient, a man aged fifty years, suffering from tabes, incapacitated by the disease, was completely transformed by neosalvarsan treatment. Five intravenous injections of 0.3 gram to 0.6 gram were first administered at weekly intervals; after the last had been given, distinct improvement was already manifest, the patient walking far more easily and being freed from the previously existing severe pains. An additional injection of 0.75 gram, however, was followed by sudden prostration; the treatment was thereupon given up for six weeks, during which, nevertheless, symptomatic improvement continued. At the end of this period, three weekly injections of only 0.3 gram were given, but on each occasion toxic effects followed. Intramuscular injections were then resorted to, and were perfectly borne. The improved condition already secured had been maintained for three months at the time of writing.

Heliotherapy in Surgical Tuberculosis.—H. J. Gauvain, in the *Lancet* for July 18, 1914, lays stress on heliotherapy as a valuable aid in the treatment of surgical tuberculosis. Its application must be undertaken gradually and requires considerable care. Apparently pigmentation must be established before material benefit occurs. In certain patients, especially those of a cachectic type, with abundant evidence of pronounced tuberculous toxemia, pigmentation cannot be obtained. Exposure of these patients to sunlight has no beneficial effect whatever, at least at first, though in some the power to pigment is later acquired, and this pigmentation is not infrequently synchronous with abscess formation and enhanced,

if the abscess formed is treated by aspiration. In red haired patients the desired bronzing is difficult to obtain. In the majority of other cases, pigmentation is easily produced, and marked improvement coincides with it. In no cases of tuberculous arthritis is the improvement more striking than where sepsis complicates; and sinuses that appear to resist all other methods of treatment not infrequently undergo rapid desiccation, leaving supple, nonkeloidal, and less unsightly scars. The value of pure, dry air in assisting in the production of these results has, in Gauvain's opinion, hardly been given sufficient recognition. The functional results following insolation of tuberculous joints were observed often to be extremely satisfactory, and cases of tuberculous peritonitis and adenitis also frequently derived considerable benefit. On cloudy days, heliotherapeutic treatment may be continued artificially, with excellent results.

Use of Iodine in Solid Form.—Tissot, in *Bulletin de l'académie de médecine* for November 24, 1914, is credited by Pouchet with having devised a preparation by means of which iodine can be transported in a solid form by the individual soldier and used for the immediate disinfection of wounds, obviating the necessity of having at hand a supply of alcohol to dissolve the iodine; at the same time providing a sufficient dilution of the iodine for direct application to the tissues. The preparation is made by dissolving ten grams (two and a half drams) of iodine in ether and triturating this solution with 300 grams (10 ounces) of kaolin, previously desiccated and sterilized. The resulting powder is readily carried in small vials, waxed paper, wooden boxes, etc. The powder seems to keep indefinitely, and is easily used in the absence of any fluid, always hard to obtain on the battlefield. To the antiseptic action of the powder are added the useful absorptive and isolating properties of the kaolin vehicle. If necessary, the kaolin powder might be replaced by powdered cinchona, the keratoplastic action of which would then supplement the antiseptic effect of the iodine.

Treatment of Lymphosarcoma.—Moorhead, in the *Charlotte Medical Journal* for February, 1915, is stated to have obtained good effects in a case of intrathoracic lymphosarcoma by the internal administration of benzol. The treatment was suggested by the well known effect of this drug in leucemia. One dram (4 c. c.) of the drug was given daily at first, but the dose then rapidly increased up to five drams (20 c. c.). Enlarged glands were present on both sides of the neck, and x ray examination revealed a large opaque mass filling up the greater part of the superior mediastinum. Stridor, muscular and laryngeal weakness had already appeared. The result of the benzol treatment, combined with x ray exposures over the manubrium sterni twice weekly, was almost complete disappearance of the glands in the neck, disappearance of dullness at the manubrium sterni, and great diminution in cough and huskiness. This was the first case of inoperable intrathoracic lymphosarcoma in which the author had seen benefit from any treatment.

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A PROBLEM EVOKED BY THE ANTINARCOTIC LEGISLATION.

The so called Boylan Law supplied the missing link in the chain of registration of the use and disposal of habit forming drugs. Physicians became subject to a great deal of inconvenience by being compelled to make out and keep various records and certificates, but did not object when it was made clear that registration was absolutely essential to control the sale and use of habit forming drugs in this State. That this was true, was evidenced by the statistics of drug victims arraigned in the magistrates' courts of this city; they have increased manifold since the law became effective. The enactment of the National law along the same lines has put further pressure upon the sellers and users of narcotic drugs. But in addition to these most desirable effects, the laws have created a problem which should be met adequately. Having made it very difficult for drug addicts to obtain the drugs, the laws have thrown thousands of these wretches upon the only two of the city hospitals, Bellevue and the Metropolitan, which accept such cases. The drug services in these institutions are crowded to their utmost limits. No private general hospital in this city maintains such service for either indigent or pay patients.

Moreover, the treatment is productive of no permanent results, when the "cured" person returns,

usually in a weakened physical condition, to his or her old vicious environment. It seems only rational, before letting loose the patients, to deal with them in a constructive way, to send them to a farm, for example, where they could recuperate physically and morally by working for a period of time in a healthy and wholesome environment. There should be an agency which, after their return to the city, would take it upon itself to place them in suitable positions; furthermore, there should be constant supervision for some time to avert the disaster of having them again fall into the old habits.

To this end the farm colony for inebriates at Warwick, Orange County, N. Y., bought by the city a few years ago, is ideally suited and has been made available, by recent amendment to the law, as a recipient of drug cases. The city, however, has not until now found it possible to appropriate the necessary funds to develop this colony. It is essential that strong presentation to that effect be made to the city authorities by the medical profession, social workers, and others interested in public health and public safety.

THE PROPHYLAXIS OF MALARIA.

In *Bulletin No. 6*, issued by the medical department of the army, Craig discusses the very important question of the prophylaxis of malaria. His remarks on quinine in relation to both prophylaxis and treatment are of especial interest and may be read with profit by all. No method has given rise to more controversy; the literature is filled with the most discordant statements, from enthusiastic approval to almost absolute condemnation. The results obtained in several parts of the world seem to furnish an absolute demonstration of its undoubted value. In Italy, under the auspices of the Society for the Study of Malaria, led by Celli, the results have been most striking; since about 1905, when the method was put into general use, the morbidity from malaria in the Italian army has been reduced from over twenty-seven per cent. to about five per cent. In the penal colony of Castiades, Sardinia, cases of malaria among the prisoners have shown the remarkable reduction from ninety-two per cent. to six per cent. In all Italy the mortality from malaria has decreased from 21,000 deaths in 1887 to about 3,000 in 1908. These results are attributed by Celli largely to quinine prophylaxis.

While the method is thus shown to be one of great worth when properly applied, Craig quite correctly insists that it should not be relied upon to the exclusion of other methods, except under conditions rendering the combination of other methods impossible. Craig lays stress on certain points in the pharmacology of quinine which are of importance.

He thinks it evident that the drug is capable of affecting the plasmodia in practically every stage of their development, hence he is a believer, under ordinary conditions, in divided doses at regular intervals. Recent research has shown that the salts most soluble in water are not more readily absorbed than the more insoluble ones, and the latter are better tolerated. It has also been shown that if the drug is taken daily, it accumulates in the blood up to about double the initial dose, and then is eliminated by the kidneys, the time consumed in elimination being not longer than three days. These are important facts in the effective administration of quinine.

For these and other reasons, among the many methods recommended in quinine prophylaxis, the preference would seem to lie with a method which comprehends the daily administration of the drug. Celli's method consists in the daily administration of six grains, half in the morning and half in the evening, to adults, and half this dose for children. He uses the tannate, which is almost tasteless and is well tolerated. Craig approves this method.

In quinine we possess a specific remedy for malaria, provided that it is properly used. Neglected and improperly treated cases keep the disease going. If cases are poorly treated the symptoms are masked, and in a few days gametes develop in the blood and the patient becomes a carrier. "The time to begin malarial prophylaxis," says Craig, "is with the treatment of every acute infection, and if this is well done one has performed one of the most important duties, from a prophylactic standpoint, that falls to the lot of the physician." And prophylactic standpoints are becoming steadily the most important standpoints.

The treatment of latent infections and carriers presents more difficulty than that of acute infections. Carriers should be screened till free from gametes, or, as Craig advises, till the gametes in the peripheral blood are less than one to 500 leucocytes. Darling and Thomson have shown that patients are not infective through the mosquito unless the gametes exceed this number.

MILAN AS A MILITARY HOSPITAL CENTRE.

Milan is now preparing to receive and care for the greatest possible number of wounded soldiers. Thanks to the generosity of some large institutions and numerous citizens, some twenty military hospitals have been organized, all adequately equipped. These hospitals are connected by special tracks with the State railway, and as the city tramways have the normal gauge, their tracks serve this end admirably. Five separate lines leave the railway station, and as soon as a convoy arrives, the cars containing

the wounded are switched on to one of the five lines according to the type of illness or wounds; each line is connected directly with one of the hospitals destined for special treatment, so that there is no loss of time by the patient in reaching his proper destination.

The principal outlying towns have been desirous of contributing their share in this great work, so that military hospitals have been established in the towns of Busto, Magenta, Saronno, Varese, and other places. Thus the total number of beds that Milan and the surrounding towns can offer to the army amounts to at least 25,000.

A very numerous and well prepared personnel was also most essential and here again Milan has been quite equal to the occasion. This hospital service is not connected with the Red Cross, which, let it be said, has been developed to the highest point of efficiency. Milan has put to profit the past eight months in the organization of its sanitary service by the experience acquired on the battlefields in France and Russia.

And what has been accomplished by Milan has also been carried out by the other principal centres of Northern Italy on a vast scale. The preparation of the personnel was already begun at the end of 1914, because public opinion at that time foresaw the participation of Italy in the great European war.

INTESTINAL ANTISEPSIS.

There are not many fields of internal medicine over which so much earnest thought has been expended with so little profit as that of intestinal antiseptics. It has long been the hope of physicians that undesirable flora might be destroyed in the alimentary canal without danger to the host, but practically every plan suggested has proved either to be of no avail or to involve too great a risk. The very nature of the contents of the intestinal tract is such as to render the problem well nigh insurmountable, for the antiseptic substances introduced have more or less affinity for the albuminous materials present, which thus protect the bacteria. In addition, the large volume of the contents so greatly dilutes any soluble agent as to make it practically or completely devoid of antiseptic action. Finally, it is by no means certain that intestinal antiseptics would be of advantage in any save the most exceptional cases if we could secure it. Nevertheless the problem is still being wrought over and recently A. Geronne and W. Lenz (*Berliner klinische Wochenschrift*, April 5, 1915) have reported success by a new method in the removal of typhoid bacilli from the alimentary canals of carriers.

On the basis of the recent work of Wiechowski

on the truly remarkable adsorptive properties of animal charcoal, and on the strength of the well known antiseptic properties of thymol, the authors conceived the idea that a combination of these two agents might result in an efficient means of destroying intestinal organisms. Although thymol is relatively insoluble, it has the disadvantage of being absorbed from the intestine to a considerable extent in some cases, and when so absorbed it may produce serious toxic effects or even death. It was shown, however, that animal charcoal was capable of greatly reducing the likelihood of this absorption, thereby protecting the patient and at the same time permitting a longer exposure of the intestinal organisms to the destructive effects of the drug. The adsorptive property of the charcoal also tends to reduce the quantity of free albuminous substances and to prevent the fixation of a considerable portion of the thymol.

The idea of the authors was apparently confirmed in three typhoid carrier cases, for the administration of one gram of charcoal three times daily, followed in half an hour by an equal amount of thymol, sufficed in a short time to remove permanently the typhoid organisms from the stools. Not only were these eliminated, but culture of the stools showed that the numbers of many other organisms were also greatly diminished, particularly the organisms of the colon group. It is further conceivable that, by reversed peristalsis which is known to occur in the bile ducts, the charcoal-thymol mixture was carried into the gallbladder.

It is yet too soon to accept the observations here recorded, but the method seems to deserve a trial. On whom could it receive a more satisfactory test than on "Typhoid Mary," who was recently responsible for the infection of several residents of a hospital?

CECUM IN A LEFT INGUINAL HERNIA.

John F. Hornsey, of Singapore, communicates to the *British Medical Journal* for May 15, 1915, the case of the three year old boy suffering from a left sided strangulated inguinal hernia. On operating, Mr. Hornsey found the whole cecum in the hernia sac, as well as the appendix and part of the ileum; he is inclined to attribute the phenomenon to a

mesenteric attachment of unusual length which had permitted the cecum to become easily dislodged from its usual site in the right iliac fossa. It was not a unique case in this surgeon's experience.

A DRESSING FOR INFECTED WOUNDS.

L. E. Gilbert writes from Lahore to the *British Medical Journal* for May 29, 1915, that he has never found tincture of iodine to be of much value in the treatment of infected wounds. Possibly he has used the simple tincture and not what used to be known as Churchill's iodine, which contains potassium iodide and is now official in the British Pharmacopœia. Be that as it may, the writer speaks highly of a mixture of equal parts of camphor and carbolic acid. Large, irregular, contused wounds, he says, should have all sloughing or gangrenous tissue removed; they must be thoroughly dried and then treated throughout with the camphor and carbolic, care being taken to enter every smallest pocket. The edges are drawn together as far as possible; it is advisable to leave a gauze drain in place.



CHARLES EDWARD WOODRUFF, A.M., M.D.,
Late Lieutenant Colonel, U. S. A. Medical Corps,
Retired.

PAYMENT OF BRITISH MEDICAL OFFICERS.

The *Western Medical News* for May, 1915, quotes from an English medical journal the following rates of remuneration for captains in the Royal Army Medical Corps of the territorial force, when serving at the front: Pay, fifteen shillings and sixpence a day; field allowance, three shillings and sixpence; lodging allowance, three shillings; fuel and light, one shilling and threepence; total, twenty-three shillings and threepence or about five dollars and three quarters a day. Civil surgeons receive twenty-four shillings or about six dollars a day.

Obituary.

CHARLES EDWARD WOODRUFF,
A. M., M. D.,
of New Rochelle, N. Y.,

Lieutenant Colonel, Medical Corps, U. S. A., Retired.

Lieutenant Colonel Woodruff died at his home in New Rochelle, Sunday, June 13, 1915, after prolonged indisposition from arteriosclerosis, which had led to his retirement from the army in 1913. He was born in Philadelphia, October 2, 1860, was educated at the Central High School, and subsequently acquired the

degrees of A. B. and A. M. He then put in three years at Annapolis Naval Academy, but resigned to study medicine at Jefferson Medical College, whence he graduated in 1886. He first entered the navy as assistant surgeon, but after a year in that service, was transferred to the army medical corps, of which he was a member until 1913. Colonel Woodruff served two terms in the Philippines, where he became impressed with the unsuitability of the tropics as a place of residence for white men, a theory which he eventually developed in his books. These works, *The Effect of Tropical Light on White Men*, *Expansion of Races*, and *Medical Ethnology*—the last reviewed in the JOURNAL for June 12th—caused considerable discussion owing to their original point of view. Colonel Woodruff was the author of some seventy pamphlets on various subjects, mostly medical and based on a tour of the world made after his retirement, during which he made a profound study of sanitary problems; he was also a valued contributor to the JOURNAL. In 1914 he became associate editor of *American Medicine*. He is survived by a widow and two sons.

Colonel Woodruff was a man of distinguished presence and manner, most attractive as a companion, an admirable speaker and conversationalist, and deeply imbued with his specialty and the cognate sciences. His premature death is a great shock to an immense circle of friends who admired and loved him.

News Items.

The China Medical Journal.—Dr. A. F. Cole, of Ningpo, China, is now editor of this periodical, having succeeded Dr. A. C. Hutcheson, of Shanghai.

New Honors for Doctor Sajous.—At the commencement exercises of Temple University, Philadelphia, held June 5th, the honorary degree of Doctor of Science was conferred upon Dr. Charles E de M. Sajous.

Failure of Antityphus Inoculation.—We learn from a letter to the editors of the NEW YORK MEDICAL JOURNAL, dated May 5th, old style, that attempts at prophylaxis of typhus in the Servian army by antityphus serum have so far proved fruitless.

Meetings of Medical Societies to Be Held in Philadelphia during the Coming Week.—Tuesday, June 22d, West Philadelphia Medical Association; Thursday, June 24th, Pathological Society, Northwest Branch of the County Medical Society; Friday, June 25th, Northern Medical Association.

Philadelphia Laryngological Society.—At the annual business meeting of this society, held on June 1st, the following officers were elected to serve for the ensuing year: President, Dr. George M. Coates; vice-president, Dr. Fielding O. Lewis; secretary, Dr. William Penn Vail; treasurer, Dr. Robert F. Ridpath; for membership on the executive committee, to fill a vacancy and an unexpired term, Dr. P. Samuel Stout and Dr. Frederic M. Strouse; librarian, Dr. Ross H. Skillern.

Medical Conventions to Be Held in San Francisco Next Week.—The following medical societies will hold their annual meetings in San Francisco next week: American College of Surgeons, Monday; Medical Society of California, Monday; American Association of Medical Examiners, Monday; American Therapeutical Association, Monday and Tuesday; American Proctologic Society, Monday and Tuesday; American Hospital Association, Monday to Friday; American Medical Association, Monday to Saturday; Medical Association Isthmian Canal Zone, Thursday; Pacific Association, Railway Surgeons, Friday; American School Hygiene Society, Friday and Saturday; American Academy of Medicine, Friday to Monday.

A Pharmaceutical Authority Honored.—At the recent Commencement Exercises of the College of Pharmacy, Philadelphia, the degree, *honoris causa*, of Master in Pharmacy was conferred on Mr. Caswell A. Mayo, editor of the *American Druggist* and president of the American Pharmaceutical Association. Mr. Mayo's services as a consultant in matters pharmaceutical have long been highly esteemed by the editors of the NEW YORK MEDICAL JOURNAL, whose congratulations are hereby tendered on account of this well merited tribute.

A Convalescent Home for Colored Patients.—The Burke Foundation will open during June, a branch near White Plains, N. Y., for the convalescence of colored patients, along the lines that are proving so successful in the main institution. This will be under the management of the National League on Urban Conditions among Negroes, through which application is to be made, and will fill a long felt want. Greater New York has a colored population of about 120,000 with practically no provision heretofore for their convalescent care.

Cornell University Medical College.—At the annual commencement, held on June 10th, the degree of M. D. was conferred upon twenty graduates. The John Metcalfe Polk Memorial Prizes were awarded as follows: First prize, \$300, to Dr. Rowland Parker Blythe; second prize, \$125, to Dr. Leo Edelman; third prize, to Dr. Gertrude Guild Fisher. The prizes for efficiency in otology were presented by Professor Whiting to Dr. Leo Edelman, who received the first prize of \$50, and Dr. Rowland Parker Blythe, who received the second prize, \$25.

Canadian Physicians for Servia.—The following physicians from western Canada have volunteered for medical service in the Servian army, according to the May number of the *Western Medical News*: Dr. W. J. McAlister, of Calgary; Dr. D. C. Hart, of Kipling, Sask.; Dr. R. L. Hutton, of Rosthern, Sask.; Dr. J. Hetherington, of Carievale, Sask.; Dr. Alfred Whitmore, of Cabri, Sask.; Dr. V. Bourgeault, of Marcellin, Sask.; Dr. P. E. Lavoie, of Marcellin, Sask.; Dr. G. E. Duncan, of Vernon, B. C.; Dr. B. A. Hopkins, of Blaine Lake, Sask.; Dr. J. B. Mackay, of Kitscoty, Alta.

West Virginia State Medical Association.—At the closing session of the annual meeting of this association, held in Huntington on Wednesday, Thursday, and Friday, May 12th, 13th, and 14th, Dr. A. P. Butt, of Davis, was elected president, and Wheeling was chosen as the convention city for 1916. Other officers were elected as follows: Dr. A. S. Bothworth, of Elkins, first vice-president; Dr. G. C. Schoolfield, of Charleston, second vice-president; Dr. S. P. Lawson, of Logan, third vice-president; Dr. J. Howard Henderson, of Marlow, secretary; Dr. H. G. Nicholson, of Charleston, treasurer; Dr. J. R. Bloss, of Huntington, editor of the association journal.

The Alumnæ Association of the Woman's Medical College, Philadelphia, elected the following officers on June 4th: President, Dr. Elizabeth L. Peck; first vice-president, Dr. Annie L. Connor; second vice-president, Dr. Mariana Taylor; director, Dr. Catherine Macfarlane; recording secretary, Dr. Jacobina S. Reddie; corresponding secretary, Dr. Mary Buchanan; treasurer, Dr. Ellen C. Potter; censors, Dr. Marguerite I. Cockett, Dr. Helen M. Stewart, and Dr. Anna J. G. Young; committee on library, Dr. Berta M. Meine; necrology, Dr. Berta Whaland; education, Dr. Bertha Lewis; fellowship, Dr. Eleanor C. Jones; entertainment, Dr. Elsie Treichler, and alumnæ, Dr. Gertrude A. Walker.

American Relief for Belgian Physicians.—The report of the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession, for the week ending June 12, 1915, is as follows: Contributions, New England Hospital Medical Society, Boston, \$30; Aux Plaines Branch of Chicago Medical Society, Maywood, Ill., \$44; Vigo County Medical Society, Terre Haute, Ind., \$25; Dr. Jacob Schwinn, Wheeling, W. Va., \$10; Dr. John Bryant, Boston, \$10; Dr. Robert J. and Dr. John L. Sageron, Johnston, Pa., \$10; Dr. Catherine H. Travis, New Britain, Conn., \$2; Dr. George B. Lake, Manila, P. I., \$2; Dr. M. J. Kenefick, Algona, Iowa, \$10; Dr. E. W. Link, (second contribution), Palestine, Texas, \$10; receipts for the week ending June 12th, \$153; receipts previously reported, \$7,159; total receipts, \$7,312.

Hospital Appointment for a Physician in India.—Announcement is made in the *Canadian Journal of Medicine and Surgery*, for June, 1915, that a physician is required immediately to fill the position of medical superintendent of the Emery Hospital, Anand, Gujarat, India. Anand is on the main line between Baroda and Ahmedabad. The Emery Hospital was established by Doctor Andrews about twelve years ago as a small dispensary and surgery in his bungalow. The hospital at present has accommodation for forty in-patients and the work is growing daily. The applicant must be a Christian and interested in foreign mission work. Full particulars may be obtained from Colonel Gaskin, Salvation Army headquarters, Toronto, Ontario.

Last Week's Death Rate in New York.—During the week ending June 12th, 1,479 deaths were reported against 1,365 for the corresponding week of last year, an actual increase of 114 deaths. If, however, the increase in the population is considered, there were only 60 more deaths. The death rate for the past week was 13.29 against 12.75 for the corresponding week of last year. The increase was due to the higher mortality from measles, diarrheal diseases, lobar pneumonia, influenza, heart diseases, and diseases of the nervous system. The increase in the number of deaths from organic heart diseases is somewhat offset by decrease in the number of deaths from chronic Bright's disease. The death toll was heaviest at the extremities of life. The mortality of infants under one year and of persons over sixty-five years old showed a very material increase, despite the temporary increase in the number of deaths which occurred in the city last week.

Alumni of the University of Buffalo Hold Annual Meeting.—At the fortieth annual meeting of the Alumni Association of the Medical Department of the University of Buffalo, held in Buffalo, June 1st to 4th, the following officers were elected: Dr. Lesser Kauffman, of Buffalo, president; Dr. Charles D. Aaron, of Detroit, first vice-president; Dr. Archer D. Babcock, of Syracuse, second vice-president; Dr. James E. King, of Buffalo, third vice-president; Dr. Jane W. Carroll, of Paterson, N. J., fourth vice-president; Dr. Lee A. Whitney, of Rochester, N. Y., fifth vice-president; Dr. Julius Richter, of Buffalo, secretary; Dr. Frank E. Brundage, of Buffalo, treasurer; trustees for five years, Dr. Benjamin F. Rogers, of Buffalo, Dr. Charles L. Preisch, of Lockport, N. Y., Dr. Henry C. Buswell, of Buffalo, Dr. Grover W. Wende, of Buffalo, and Dr. George F. Cott, of Buffalo; executive committee, Dr. William F. Jacobs, Dr. Edith E. Hatch, and Dr. William G. Bissell, of Buffalo. Dr. Peter W. Van Peyma, of the class of '72, for thirty years a member of the medical faculty of the university, was the guest of honor at the banquet held on the evening of June 3d, and the graduating class of 1915 presented to the university a portrait of Doctor Van Peyma to be hung in the college library. The constitution and bylaws of the association were revised and steps taken to establish an alumni endowment fund to be used for the advancement of teaching and research work in the institution.

Standardizing Dispensary Work.—The recently published second annual report of the Associated Out Patient Clinics of the City of New York contains recommendations for the organization and equipment of pediatric and general medical clinics. These recommendations, in conjunction with the recommendations concerning genitourinary, skin, syphilitic, and gynecological clinics published in the first annual report, provide a set of objective standards hitherto nonexistent. The section in surgical clinics has recently finished its report and in this way five branches of dispensary work have been scientifically standardized with reference to equipment and organization. It is hoped that when the standards recommended are generally adopted, a solid foundation will be laid for the development of the great latent possibilities along therapeutic and preventive lines that lie within the work of the dispensaries and out patient departments of hospitals. In addition to the standards, the report contains a list of dispensaries, subdivided by clinics and the hours at which they are open, which makes it a very handy and serviceable guide for physicians and social workers; also a list of industrial poisons subdivided by the functional disorders caused by them, which should prove of service in clinic rooms. The report can be obtained from Dr. E. H. Lewinski-Corwin, executive secretary, 17 West Forty-third Street.

Nurses at the Exposition.—Nurses, thousands of them, will invade San Francisco and the Panama-Pacific Exposition during Nurses' Week, June 20th to 27th. These delegates and members are from four organizations, the National League of Nursing Education, California State Nurses' Association, American Nurses' Association, and the National Organization for Public Health Nursing. Of these, the American Nurses' Association numbers 22,000 members and the National League of Nursing Education 12,000. Later, August 9th to 13th, occurs the Spanish-American War Nurses, and the Red Cross Congress, August 28th. The National Organization for Public Health Nursing has already announced its program.

The Chicago Medical Society and the Leo Frank Case.—At the regular monthly meeting of the council of the Chicago Medical Society, held on Tuesday evening, June 8th, the following resolutions were adopted:

WHEREAS, Leo Frank has been resented to hang on June 22d; and

WHEREAS, Nine out of ten thoughtful Americans believe that Frank is innocent; and

WHEREAS, Frank has never been proven guilty by evidence that will satisfy history, and if executed on such unreliable evidence, the good name of Georgia will suffer for years to come; and

WHEREAS, The judge who presided at the trial declared that he was not convinced that Frank had murdered Mary Phagan; and

WHEREAS, To practically everyone who has studied the case, the evidence points quite the other way; therefore, be it

Resolved, That the Chicago Medical Society, comprising as it does three thousand members, express to the Governor of Georgia its belief in the *innocence* of Leo Frank, and also believes that at this time justice will be best conserved if the Governor will commute to life imprisonment the sentence of this unfortunate man. And be it further

Resolved, That a copy of these resolutions be sent to the Governor of Georgia and that a similar copy be sent to the wife and family of the unfortunate.

Personal.—Dr. Victor C. Vaughan, professor of hygiene at the University of Michigan, and president of the American Medical Association, received the honorary degree of LL.D. at the annual commencement of Jefferson Medical College, Philadelphia, on June 5th.

Doctor Wheeler acknowledges with thanks the receipt of a check for twenty-five dollars from the Norwich (Conn.) Medical Association, through the secretary, Dr. Lester E. Walker, for the Belgian Physicians' Relief Fund. The check has been forwarded to Dr. Frank F. Simpson, of Pittsburgh.

Dr. Reynold Webb Wilcox, of New York, has received from Wittenberg College the degree of D.C.L.

Dr. V. G. Heiser has resigned as director of health in the Philippines and has accepted the position of director for the Orient of the Rockefeller Foundation.

At the Commencement Exercises of Syracuse University, the honorary degree of LL.D. was conferred upon Dr. Henry L. Elsner, professor of medicine in the medical department of the university.

Dr. I. Arthur Stoloff, of New York, has been appointed assistant surgeon to the New York City Children's Hospitals and Schools, Randall's Island, in the service of Dr. William Seaman Bainbridge.

Major William J. L. Lyster, Medical Corps, United States Army, assistant to the surgeon general, and Captain Charles F. Craig, Medical Corps, United States Army, in charge of the department laboratory of the Central Department at Fort Leavenworth, Kans., have been appointed by the President delegates to represent the United States at the Ninth International Congress of the World's Purity Federation, to be held at San Francisco, July 18 to 24, 1915.

Gifts and Bequests to Hospitals.—The Addison Gilbert Hospital, Gloucester, Mass., has received through the will of the late Rev. Jeremiah J. Healy securities amounting to \$40,000 and title to property in Washington, D. C., valued at \$75,000.

The late Ada R. Kimball included among other bequests one of \$5,000 to the American Oncologic Hospital.

Among other public bequests of the late William J. Power were \$5,000 to St. Joseph's Hospital, \$1,000 to St. Vincent's Maternity Hospital, and \$500 each to St. Mary's and St. Agnes' Hospitals.

By the will of Elizabeth L. Roberts the Episcopal and German Hospitals of Philadelphia will each receive \$5,000.

Included in the will of the late Sally Roberts Smith are the following contingent bequests to Philadelphia institutions: Episcopal Hospital, \$10,000; Pennsylvania Hospital, \$5,000; Chestnut Hill Episcopal Home for Consumptives, \$5,000; Christ Church Hospital, \$10,000.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

March 15, 1915.

Magnesium Sulphate in Tetanus, by S. J. Meltzer.—The analgesic and muscular depressant actions of magnesium sulphate after intraspinal injection are explained through an action of the drug upon the origins of the sensory and motor nerves, which are here devoid of connective tissue sheaths. It is believed that magnesium sulphate breaks the continuity of the neurones at their synapses, blocking both afferent and efferent impulses. It is also possible that its presence directly interferes with the spread upward in the central nervous system of the tetanus toxin, and it may thus actually antagonize the causative factor of tetanus. Three methods of administration are discussed—intraspinal, subcutaneous and intramuscular—of which only the two first are recommended. For intraspinal use one c. c. of a twenty-five per cent. solution should be given for each ten kilograms of the patient's body weight. This will give complete relief from convulsions for a period of from twelve to twenty-eight hours; and the dose may be repeated before the effects of the first have completely worn off. It is preferable, however, not to repeat the intraspinal administration but to give the subsequent doses subcutaneously. For this purpose a dose of 0.3 gram to the kilogram should be given in twenty-five per cent. solution and may be repeated four times a day. For children and young persons, the doses should be smaller for each mode of administration. With such doses as these there is scarcely any danger of causing serious depression of the respiratory centre and the heart is unaffected. If, however, respiratory depression should be produced in a given case, the best means of combating it is by efficient mechanical artificial respiration. The effects of magnesium sulphate can also be antagonized by the intravenous injection of 500 to 600 c. c. of a solution of two grams of calcium chloride and six grams of sodium chloride in a litre of distilled water. The intramuscular method can be used, particularly if combined with a brief period of ether anesthesia, but this method is not so safe as the other two described. Treatment should be begun as early in the disease as possible, in order to protect the patient against the serious effects upon the heart of the convulsive seizures. Antitoxin should be used along with the magnesium sulphate, but the two should not be injected simultaneously into the spinal canal for fear that excessive pressure might result from the introduction of too much fluid.

March 20, 1915.

Further Experiences of the Abderhalden Reaction, by F. Ebeler and E. Loehner.—The value of the test in the diagnosis of pregnancy and cancer was studied in a considerable number of cases. The results showed a negative reaction in one case in a series of thirty-nine cases of normal pregnancy, and in a series of sixty-one women nonpregnant the reaction was positive in twelve cases. The authors say that these results confirm their earlier experience in which they found the reaction incorrect in

about twelve per cent. of cases. In twenty-eight cases of carcinoma, the reaction was positive to carcinoma tissue in eighty-two per cent. A considerable proportion of the carcinoma cases also reacted more or less markedly to placenta as substrate. It seems that the reaction cannot be regarded as conclusive as a diagnostic method, and the modifications in the technic which are frequently introduced in order to improve the results of the test all tend to its complication, so that it is becoming less and less readily applicable so far as the practitioner is concerned.

Action of Artificial Camphor, by Carl Lutz.—The shortage of natural camphor in Germany has made it desirable to seek a substitute for it in medical practice. Three samples of synthetic camphor, from as many different manufacturers, were tested clinically upon a number of patients. The effect upon the pulse rate and systolic blood pressure was studied especially. The results of the tests showed that each of the artificial products had the same actions as were produced by the natural product and none showed any evidence of harmful actions. The striking feature of the author's figures is, however, that the circulatory effects of camphor were so slight in most cases as to be of scarcely any therapeutic value.

CORRESPONDENZ-BLATT FÜR SCHWEIZER AERZTE.

April 24, 1915.

The Tower Skull and Nature's Autotrophing, by J. Strebel.—The various forms of oxycephalus are discussed, with particular reference to the form in which the vertex of the skull is drawn upward to a point, the *Turmschädel* of German writers. Exophthalmos is present because the deformity of the skull makes the orbits too shallow, but the most serious consequences to the eyes is the production of optic atrophy from the mechanical injury inflicted on the nerve either in the orbit or at the base of the skull. During the past four years, Strebel has seen nine of these cases in seven of which optic atrophy developed. He says that it starts as choked disc, which is followed by an optic neuritis, and then by a simple descending atrophy; it usually develops before the age of seven years; boys are more apt to suffer than girls. As a rule there are no cerebral symptoms, though headache is sometimes observed, and in two of his cases there were clonic convulsions and loss of consciousness. Through x ray studies of these skulls, he hit upon what he terms Nature's autotrophing to relieve the intracranial pressure by finding holes in the skull. In one case he found a large hole and eleven small ones; the patient had no visual disturbances during life. In cases of apparently primary optic atrophy attention should be directed to the configuration of the skull, which should be examined with the x ray, by means of which not only total, but partial tower skulls may be detected, and the matter of decompression should be carefully considered with a view to prevent blindness.

Further Epidemiological Researches Concerning Endemic Goitre, by R. Klinger and Th. Montigel.—The writers found in one house ten cases of goitre in three unrelated families, the water supply being the same as that for their neighbors

who were free from the disease. In one of these families all living members were goitrous, yet the authors do not believe the disease to be hereditary. Still there is hereditary predisposition, called into play by some exogenous cause not dependent on or carried through water. The authors urge the collection of data to assist in the detection of this cause.

BULLETIN DE L'ACADÉMIE DE MÉDECINE.

April 13, 1915.

Meningococcic Suppurative Arthritis, by Arnold Netter and Henri Durand.—Stress is laid on the frequency of this complication of meningococcic infection, which occurs oftener than any other complication except otitis. In 200 cases of cerebrospinal meningitis the authors met with eleven cases of joint involvement, or 5.5 per cent. In the cases with monoarticular involvement the joints affected were, twice the wrist, once the knee, and once the external synovial sheath at the ankle. Where two joints were involved, both knees were affected in one case, both shoulder joints in another, and one knee and elbow in a third. In all cases recovery took place without ankylosis or even stiffness of the joints. Intraarticular injection of antimeningococcic serum clearly shortened the course of the joint involvement, the effusion often being resorbed in a day or two after the injection; recovery also took place, however, in two cases which received only intraspinal injections of serum. Recovery is not constant without treatment, a case terminating in ankylosis of the shoulder having been previously reported by Netter and Josias. In five of the series of eleven cases, the purulent exudate in the joints was sterile; in these patients the arthritis had usually appeared after the meningial suppurative process had already yielded to intraspinal serum injections. Multiple arthritis involving chiefly the joints of the hands and feet was met with four times in infants, with death in three instances. Another infant had a primary meningococcic purulent arthritis of the shoulder. The similarity of meningococcic joint complications to those of pneumococcic causation is pointed out.

Glycuronic Acid Excretion as a Test of Hepatic Function, by Henri Roger and Maurice Chiray.—Glycuronic acid in the urine is of value as a test in a variety of disorders, to ascertain the functional capacity of the liver and its ability to fix and utilize glucose. Normally, the urine always contains glycuronic acid, the excretion of which is augmented under a diet rich in meat; and it diminishes under a vegetarian diet. In eighteen cases of atrophic cirrhosis, but one was found to be still excreting the acid in notable amount. In a case of tuberculous peritonitis the presence of glycuronic acid excluded the diagnosis of hepatic cirrhosis, while in a woman whose ascites had been attributed to an abdominal tumor, the absence of glycuronic acid led to a diagnosis of hepatic cirrhosis, which was confirmed at autopsy. Diabetics were found never to excrete glycuronic acid. The test for glycuronic acid was performed by adding to twenty c. c. of freshly passed urine, ten c. c. of a saturated (in the cold) solution of mercuric acetate, filtering, adding 0.5 c. c. of a one per cent. alcoholic solution of naphthore-

sorcin and five c. c. of concentrated hydrochloric acid, heating on the water bath for fifteen minutes, cooling, adding ten c. c. of ether and shaking. If glycuronic acid is present, the ether requires a purplish blue color; if not, a yellow or pink color.

PRESSE MÉDICALE.

April 8, 1915.

Exopericardial Cardiothoracic Adhesions, by Pierre Delbet.—Typical symptoms of chronic adhesive pericarditis exist, yet the autopsy shows a completely intact pericardial cavity. Adhesions outside the pericardium afford a ready explanation of the symptoms in such cases. Since a vacuum cannot occur in the pericardial cavity any more than it can elsewhere in the organism, the cardiac contractions, where the external fibrous layer of the pericardium has become adherent to the chest wall, will cause recession of the latter at each beat as though endopericardial adhesion existed. The symptoms referred to were found even in a case with pericardial effusion, the heart being therefore not in direct apposition to the chest wall. Chondrectomy (indirect cardiolysis) by removal of a section of rib and cartilage over the point of attachment of the parietal pericardium to the chest wall is indicated in these cases. Marked benefit was thus procured in a patient operated on by the author. The chest wall being rendered completely supple at the site of adhesion, the heart is freed of the extra work entailed by tugging at the rigid chest wall at this point. Emphysema and sclerosis of the thin margins of lung tissue extending in front of the heart and acting by expansion, as a space filler between it and the chest wall during cardiac systole, can easily lead to dilatation of the right heart. This accounts for the breathlessness on moderate exertion witnessed in elderly people. Chondrectomy in the emphysematous (Freund's operation) is held by the author to benefit, not by freeing the lung, but by freeing the heart.

Internal Hemorrhage Due to Explosion of Shells, by Paul Ravaut.—In the case of a soldier afflicted with complete paralysis below the umbilicus as a result of the bursting of a large shell nearby, not the least ecchymosis was found on external examination. Catheterization and lumbar puncture, however, both yielded blood. In another case, that of a soldier who died a few hours after the explosion of a shell one metre away, no external wound was seen, but at autopsy both lungs were found torn, the pleuræ filled with blood, and the stomach also containing blood that had issued through numerous tears in the mucous membrane. Hemorrhage in various structures, including the central nervous system, is held by the author to account for other disturbances following exposure to a violent explosion, e. g., nervous shock, impaired general condition, gastrointestinal symptoms, and jaundice.

RIFORMA MEDICA

May 22, 1915.

Prolonged Aspiration of Gastric Contents for Chemical Examination, by L. R. Lanza.—This method first proposed by Ehrenreich is carried out by the introduction into the stomach of a tube of

very small calibre which is allowed to remain in position from one to two hours. To obviate the shutting off of the flow by the closure of the teeth, a short piece of hard rubber tubing is inserted into the stomach tube at fifty cm. from its extremity. This is held by the teeth in the same manner as a cigar and also prevents the slipping out of the tube. Salivation and gagging are overcome by painting the throat and moistening the tube with a five per cent. solution of cocaine. This method shows many interesting facts. It demonstrates that forty-five to sixty minutes is not uniformly the best time to withdraw a test meal. It reveals frequently a delayed hyperacidity coming on one hour or more after ingestion of food, and also that there is not a uniform relation between total acidity and free hydrochloric acid. Remarkable fluctuations in the acidity are thus demonstrated, especially in gastric neuroses. The presence of the tube in the stomach has no effect on gastric secretion if food is present. It has the striking advantage of permitting the following of the gastric digestive process for several hours instead of obtaining a single specimen at a given moment as is usually done.

Infantilism, by L. Ferrannini.—Ferrannini reiterates his own views on the subject first published in 1903; namely, that true infantilism is not arrested but merely narrowed and limited by a lack of vital force. Causative factors are infections, tuberculosis, syphilis, rheumatism and diphtheria; and intoxications, alcoholism, morphinism, and mercurialism.

REVISTA DE MEDICINA Y CIRUGIA PRÁCTICAS.

May 14, 1915.

Poisoning by Cocaine and Novocaine, by R. R. Amerigo.—One case is reported in a young man where in preparation for an eye operation, four drops of a two per cent. solution were instilled into the eye whereupon the patient began to breathe stertorously, while the instillation of four more drops produced incoherent raving. After the completion of the operation, the patient slept many hours without waking. Extreme susceptibility or idiosyncrasy would seem to be the only explanation of this case. Such cases of toxic symptoms from instillation of cocaine into the eye are extremely rare. In another case of an old woman where an operation was to be performed on the lacrymal sac, 0.05 gram novocaine and one half minim of adrenaline solution, one in 1,000, were injected into that region. Five minutes later, there was nausea, followed by vomiting, tachycardia, profuse sweating and expression of acute anxiety. Massage, strong coffee and wine brought the patient around and the operation was completed without further trouble.

SEMANA MÉDICA.

April 22, 1915.

Syphilitic Reinfection, by J. N. Posadas.—Cases of reinfection were rarely reported before the appearance of salvarsan. Posadas reports a case of mixed infection of syphilis and gonorrhea treated by means of nine intravenous injections of neosalvarsan, with complete disappearance of all symptoms and of the Wassermann reaction which had been strongly positive. The patient was under treat-

ment and observation for eleven months up to December 6, 1914. On December 8th, he showed a new hard chancre and inguinal adenitis and on January 8th, the Wassermann was once more positive. Three neosalvarsan injections again cleared up the condition and there was no further recurrence.

BRITISH MEDICAL JOURNAL.

May 29, 1915.

Traumatism and Tuberculosis, by Thomas Oliver.—Three cases are cited in which the symptoms of pulmonary tuberculosis followed almost at once after an injury or after a severe strain. It is inconceivable that an injury can itself produce tuberculosis in the short time that usually elapsed in these cases, and it is therefore presumed that it merely serves to light up an old process. This it may do in one of several ways. The occurrence of extravasation of blood into the lungs reduces the local resistance and provides an ideal nidus for the growth of tubercle and other bacilli. The fact that hemoptysis was usually delayed a few hours and frequently recurred after it once appeared led to the belief that there was some preexisting tuberculous lesion of the lung in such cases. Such a lesion would constitute a friable area and therefore the most likely to be injured by a traumatism. The rupture may not necessarily occur in the region of the injury, but lung tissue may be torn by its contained air at some distance from the site of injury, or even on the opposite side of the chest. When the traumatism affects other regions than the chest, as, for example, a joint, the local injury merely renders the tissues in that region less resistant to the tubercle bacillus, which, if carried there by the circulation from some other portion of the body, the disease will probably develop. Such a condition is not rare in man; it can be produced experimentally in animals with considerable ease. The relation of traumatism to tuberculosis is a very important one in its bearing upon the question of workmen's compensation.

Exophthalmic Goitre, by Helen M. Gurney.—A statistical study of ninety-three cases of this disease brought out the fact that in nearly eleven per cent. there had been some hereditary element, one or more members of the family having suffered from some form of thyroid enlargement. In 92.5 per cent. of the cases, the patients were females; the age of onset ranged from less than ten years to between forty and fifty. Thirty-nine per cent. of the patients gave histories of antecedent throat trouble which was suggestive of some infection by way of the tonsils. The exciting cause was emotional in twenty per cent., the generative organs in nine per cent. In sixty-two per cent. the first sign of the disease was goitre, and in twenty-one per cent. exophthalmos. The prognosis was not materially affected by the occurrence of hallucinations, organic or functional disturbances of the circulatory system, severe diarrhea, or skin disturbances of a severe nature. On the other hand, bronchitis or other respiratory affections greatly increased the mortality of the disease. The mortality was twenty-five per cent. in cases beginning between ten and fifteen years of age, and this increased gradually to a mortality of 44.5 per cent. in cases which began

after forty-five years. Among the patients who entered the hospital before the disease had been present a year, the mortality was thirty-five per cent., while among those who had the disease from one to two years before entrance, the mortality was seventy-five per cent.

The Cause of Appendicitis, by Basil Hughes.—Evidence and argument are offered to support the author's view that appendicitis is due to a rotation of the appendix on its mesentery. This gives results quite analogous to the torsion of a pedunculated ovarian cyst plus secondary infection from the organisms always present in the lumen of the appendix. The factors which lead to torsion of the appendix are the presence of a movable cecum and the loss of tone of the abdominal muscles with resulting constipation and overloading of the cecum.

LANCET.

May 29, 1915.

Pulsus alternans in Some of Its Clinical Aspects, by C. O. Hawthorne.—That pressure in the cuff of the sphygmomanometer which is just sufficient to obliterate the beat in a regular pulse is commonly regarded as an index of the maximum blood pressure. In the case of a typical pulsus alternans, the pressure which will just obliterate the stronger beats will obviously be too high for the weaker ones and similarly the pressure just obliterating the weaker beats will be too low for the more powerful ones. In such a case neither reading can be taken as a true index of the blood pressure and both readings should be stated. It was further observed that, in several cases in which polygraphic records showed a perfectly normal pulse, the application of the sphygmomanometer and the elevation of the pressure upon the brachial to a moderate extent, brought out the presence of alternate weak and strong beats. In such cases when the pressure was increased, the weaker beats could be made to disappear from the tracings entirely. In still another group of cases it was found with the use of the sphygmomanometer that the pulse, which was apparently of perfectly uniform force, was actually quite irregular in force, though not a true alternans for the weaker and stronger beats occurred quite at random. From these studies, which are carefully analyzed in his paper, the author concludes that the difference in the force of the beats is due to a difference in the force of the individual systoles which produce them. The maximum sphygmomanometer reading probably affords an approximate measure of the force with which the systole of the left ventricle reaches the radial, but is not a comprehensive presentation of the state of the systemic blood pressure. It would be preferable, therefore, to term this the sphygmomanometer reading, rather than the blood pressure. It is merely an index of the maximum height to which the blood pressure rises in a given segment of a particular vessel during an uncertain and probably variable period of time. The use of the sphygmomanometer coupled with polygraphic tracings constitutes the only trustworthy and accurate means of detecting certain cases of cardiac irregularity including pulsus alternans. The explanation of the irregularity in the force of the individual beats when observed with the aid of brachial pres-

sure in cases, which by all the usual clinical tests seem to have a perfectly regular pulse, seems to be that the increase in the resistance against which a susceptible heart is made to work when the brachial is partly compressed is enough to bring out an irregular force of contractions. Pulsus alternans is generally considered as being of grave prognostic import, but exceptions to this statement have been recorded. One is mentioned by the author in which the condition had persisted on and off for a period of six years in a young woman who was suffering with a severe grade of nephritis.

PRACTITIONER.

May, 1915.

Treatment of Cerebrospinal Meningitis (Spotted Fever), by William Whitla.—Flexner's serum should be resorted to as soon as possible after the diagnosis, and, when suspicious symptoms are met with during an epidemic, it may be advisable not to lose time by investigation, but to inject the remedy without delay. Lumbar puncture is performed under anesthesia. As much of the spinal fluid is allowed to escape as will do so spontaneously, and then twenty to thirty c. c. of the serum, at a temperature of 100° F., should be injected slowly by gravitation. Mild cases may be met by one or two injections; a dose every day or second day for six or seven times is necessary in more severe cases; when the spinal fluid has been noticed to be purulent, the injection should be repeated in six or eight hours.

Duodenum in Diabetes mellitus, by N. Mutch.—The principal points in this paper are: 1, Diabetes mellitus is associated with a great enlargement of the duodenum which cannot be accounted for wholly by coincident intestinal stasis. 2. A profuse growth of *Streptococcus brevis* was obtained from the duodenum of a boy with severe diabetes mellitus, an infection that has not been found in any other condition. 3. Ileac stasis is usually present in diabetes mellitus, and affects the prognosis adversely in proportion to its severity. 4. The urine of patients with diabetes mellitus usually contains one or more products of the action of *Bacillus coli* on tryptophan and tyrosin. Mutch suggests from a consideration of these points that chronic duodenitis may be the determining factor in the production of diabetes mellitus, and that ileac delay increases the severity of the disease by causing stagnation in the duodenum.

CANADIAN MEDICAL ASSOCIATION JOURNAL.

May, 1915.

Uterine Hemorrhage and the Menopause, by Frederick A. Cleland.—The menopause is probably induced by retrogressive changes in the ovary; an increase in the flow of blood is always pathological. The menopause may occur during a period of thirty years or more, and when hemorrhage occurs a local examination should be made near the time of its occurrence. Professional and public education regarding the early symptoms of cancer of the uterus is necessary. In severe cases of uterine hemorrhage which have resisted all medicinal treatment, the patient becomes progressively worse; hysterectomy is indicated. There seems to be no connection between hyperplasia and hypertrophy of the endometrium and hemorrhage from the uterus. The curette is

of little service at or near the menopause except for diagnostic purposes. No palliative measures should be tried until malignant disease is excluded. General conditions may be the cause of hemorrhage and syphilis should not be overlooked. Organotherapy is of little value in hemorrhage at or after the menopause. Blood transfusion is a possibility in the treatment of severe cases.

Some Sequelæ of Antityphoid Inoculation, by William Boyd.—These conclusions are drawn from observation of the effects produced by the prophylactic inoculation of eighteen thousand men. In the great majority of cases it is a harmless procedure, that involves at most a certain degree of temporary discomfort and those constitutional symptoms comprised under the term "inoculation fever." It was followed by pneumonia in two cases, by appendicitis in two, and severe gastrointestinal catarrh, more or less marked, in many. The cases of pneumonia were precipitated by the inoculation, but without doubt the microorganisms were present and ready for attack, so that if the patients had not been inoculated, some other depressing influence would have got the blame. The cases of appendicitis might be regarded as coincidental, but if intestinal catarrh and fermentation can be set up by typhoid inoculation, this may precipitate an attack, especially when the appendix is not sound. In many cases diarrhea and intestinal pain were complained of, and sometimes it was evident that an abnormal amount of fermentation was set up. The endotoxins liberated from the bodies of the typhoid bacilli by the cytolytic action of the tissues seem to exert some influence on the mucous membrane of that part of the alimentary canal which is specially affected in typhoid fever and possibly may arouse some member of the colon and typhoid group to increased activity.

BOSTON MEDICAL AND SURGICAL JOURNAL.

June 3, 1915.

Late Results of Surgical Treatment for Flexed Scapulæ, by Herman W. Marshall.—Eleven patients were operated on; eight reported later. Six of the eight thought they had been benefited, one was uncertain, one said she could use her arms just the same as before. None seems to have been made worse. With regard to time for recovery, acute symptoms in all subsided by the time the wounds were healed enough to permit the patients to leave the hospital, and in three months the majority had good function again in the shoulders. In a year's time some of the most protracted cases had been perfectly relieved. Neurasthenic pains in the arms in growing or debilitated persons were not relieved. Nonoperative treatment should always be tried first, and operation should be limited to selected cases. The best persons for the latter are middle aged and in good health; the worst are young individuals from fourteen to eighteen years old who are nervous and debilitated.

June 10, 1915.

Treatment of Hemorrhagic Disease of the New-born, by J. C. Hubbard.—On account of the difficulties met with in transfusion in an infant, the writer suggests that the blood be introduced freely into the abdominal cavity of the baby. Kimpton's

tube could be passed through the abdominal wall, the blood could be run in rapidly, there would be less danger of an overdose, the hole could be closed with a stitch or two; the operation would require but a few moments. Less anesthetic would be necessary, and the shock would be no greater than from dissection of the jugular vein. He has not verified the merits of his suggestion.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

June 5, 1915.

The Phenolsulphonephthalein Test in Chronic Nephritis, by A. R. Elliott.—First among tests is phenolsulphonephthalein. Rowntree and Geraghty have shown that in nephritis the amount of phenolsulphonephthalein excreted varies, as a rule, in rough ratio to the extent of the renal damage. In fatal uremia only traces, or none at all, of the dye appear in the urine for the two hour interval, while in mild grades of nephritis the amount recovered from the urine may be normal, or nearly so. In cardiorenal cases an increase in the output may be the earliest sign of restoration of compensation and represents a favorable prognosis; on the other hand, a low excretory capacity, persisting after clinical evidence of cardiac improvement, points to severe nephritis and a less favorable prognosis. Accumulating clinical observation, and results in the main parallel to the estimation of nonprotein of the blood, support the belief that the findings are, within certain limitations, trustworthy for prognostic purposes; but it is extremely doubtful whether the test can be employed to any important extent in the diagnosis of nephritis. Perhaps, however, the most important service it can render in nephritis is in the diagnosis of obscure uremic conditions. During the course of chronic nephritis there may arise gastrointestinal, cerebral, visual, or other functional disturbances, the uremic nature of which may be suspected. Decisive action is necessary, although clinical grounds may be insufficient for a definite judgment in the matter; and without loss of valuable time the phenolsulphonephthalein test will promptly reveal the degree of uremia present.

Injection of Alcoholic Solutions of Different Strengths into Peripheral Nerves, by W. B. Cadwalader.—In certain severe neuralgias injections of alcohol have been successful. Pain is relieved; but, unfortunately, other disturbances, more or less severe, may be substituted. Whenever the sensory fibres of a mixed nerve are destroyed, and pain is stopped, motor fibres must at the same time be destroyed, and paralysis caused; for, unlike some other toxic substances, alcohol does not have a selective action on functionally different nerve fibres. In purely sensitive nerves, like the trifacial, this is of no importance, but in motor and mixed nerves, the sciatic for example, it is of the greatest moment. If a method of alcoholic injections greatly diminished pain without a corresponding injury to sensory loss of function, an almost perfect relief of severe pain might be attained. In experiments on seven dogs, eighty per cent. alcohol injected into the sciatic nerve, caused paralysis immediate and complete; but with fifty per cent. alcohol paralysis was not so severe; while twenty-five per cent. alcohol

had little or no effect. These results were substantiated by the microscopic appearances of the nerves; in every case paralysis was caused by the direct chemical action of the alcohol, which resulted in nerve degeneration. In no instance did salt solution, injected into the sciatic nerve, cause any evidence of degeneration, or any clinical signs suggesting paralysis. It would therefore seem proper to conclude that strong alcoholic solutions cause greater destruction of nerve tissues than very weak solutions, and that salt solution may be entirely harmless. The nerve fibres were completely destroyed by the stronger solutions, yet they appeared in a favorable condition for ultimate regeneration and recovery of function; and there is abundant clinical evidence that after destruction of the nerve by alcohol, regeneration and restoration of function do occur, provided that complications do not interfere. Facial spasm may be stopped by injection of the stronger solution of alcohol, but, of course, paralysis must take place. Here repeated injections should be tried, beginning with twenty-five per cent. alcohol, gradually increasing the strength; by this means spasm might be relieved, while the paralysis occasioned would be made less severe and of shorter duration.

Indications for Operative Interference in Goitre, by V. P. Blair.—If we undertake to operate in cases other than those which are unquestionably causing grave, correlated injury, nice discrimination must be exercised. In real hyperthyroidism, only necessary excisions for the relief of pressure are indicated. In young people, it is probable that most goitres are more or less physiological, an effort to meet an increased demand; here if any treatment is indicated, it certainly should not be of a destructive kind. Adolescent goitres, with rare exceptions, require no operation. Toxic simple goitres and exophthalmic goitres which are still active are entitled to some sort of operation tending to lessen the bulk or activity of the gland. Simple goitres are to be dealt with according to the indications of the individual case. Pregnancy greatly increases the risk of radical goitre surgery.

MEDICAL RECORD

June 5, 1915.

Chronic Diseases of the Heart, Kidneys, and Arteries; Prevention and Control of these Diseases, by I. S. Wile.—New York city is suffering a disproportionate loss of human life from these causes in persons aged from thirty to sixty years. Through difficulties of diagnosis there are undoubtedly errors in the causes of death as officially reported; on the other hand, the relation of these three diseases is so close that the sum of the mortality may probably be regarded as reasonably accurate. As regards prevention of the diseases, it is necessary to organize the work of the health department from the standpoint of education in such a way as to attack the entire problem of public health. In arranging and organizing the work, the broadest point of view must therefore be taken, namely, the establishment of plans for the maintenance of the public health on the basis of preventive medicine, while the establishment of conditions for curative measures takes a position of subsidiary importance.

For the carrying out of the proposed scheme elaborate plans for the prevention and control of contagious and infectious diseases, of physical strains, and of mental stress, and general education plans are presented by the author. In order that the public money may not be wastefully used, it is desirable to try out the plan of a special health centre in a single district of the city, so that from an analysis of birth returns and mortality statistics, the actual effect of the health propaganda may be demonstrated.

Natural History of Cancer, by Robert Bell.—It has long been contended that secondary deposits of cancer are due to the migration of its cells from their original site to distant organs and tissues, these being conveyed by means of the lymphatic vessels. This Bell holds to be fallacious, because the calibre of these tubules would not allow the passage of a cancer cell. His conviction, founded on observation, is that cancer in its varied forms possesses in every instance one characteristic; it is a fungoid growth, of a malignant type. Its method of obtaining nourishment and its rapid proliferation of cells are those of a fungus; the polarity of its cells is opposed to that of the healthy cells of the body. The nature of the soil upon which it is planted—devitalized organic matter—is that of a fungus, and this soil yields to a fungus the nourishment which accounts for its marvelous rapidity of growth. The fact that its secretions are acrid and highly toxic also favors this conclusion; but by far the most conclusive evidence is the fact that it ripens like any other fungus, and produces spores as vegetable fungi do. Since when metastasis occurs the secondary growth does not partake of the character of the structure of the organ to which it has been transplanted, but retains all the histological features of the primary growth, it is only natural to infer that this is the product of spores which have been conveyed to, and have located themselves upon the organ or tissue secondarily attacked. Moreover, one has only to observe the fungating outgrowths which occur in advanced cases of cancer—such as the cauliflower excrescences in cancer of the uterus, for instance—to be convinced that this theory of the nature of the disease is correct. Now, it is a well known fact that a fungus is able to take root and develop only on decaying, dead, or devitalized material. It would seem reasonable that if the soil upon which it has hitherto derived its nourishment were revitalized by judicious treatment, the lower form of life would be starved out of existence; and this, beyond doubt, is the means which prove effectual when cancer is subdued and overcome by dietetic, hygienic, and therapeutic measures. How much more effectual, then, in eradicating this cancer are those preventive measures—a reformed diet and attention to hygienic laws, especially those bearing upon a sanitary condition of the colon—which make it impossible for the cancer neoplasm to obtain a footing within the body. Cancer cells, again, equally with fungous cells, contain a much larger percentage of lecithin than normal tissue cells. Lecithin, being a substance of a highly complex nitrogenous composition, must necessarily depend for its abnormal increment upon a soil containing an undue amount of decomposed nitrogenous products, such

as those derived from the fermentation of dead animal tissues, which are so largely consumed in food. This applies also, though to a less extent, to vegetable protein substances which have had their vital constituents and organic salts destroyed in the process of cooking. It is possible to keep the blood, which is the source of nutrition in the animal frame, in a healthy condition only so long as it is supplied by the products of materials which have not been deprived of heat or other means of their vital principle. It need not be insisted that one should confine one's self *in toto* to one particular form of diet, but it is essential that much of the food should be exactly in the condition in which nature had provided it. Whenever there is a departure from nature's precepts relative to diet, constipation is the inevitable result, and as this favors an undue retention of noxious and toxic decomposing material within the colon, permitting its absorption by the blood, it is not difficult to understand why constipation becomes such an important factor in predisposing to disease. When a person has cancer he will willingly submit to the most rigid regimen, and though it is perfectly clear that cancer is a preventable disease, the public, either from folly or ignorance, persistently refuses to adopt a mode of life which would soon check the malady.

ARCHIVES OF THE RÖNTGEN RAY.

May, 1915.

Treatment of Onychia by Ionic Medication, by D. de Vos Hugo.—A case is reported which was treated by soaking the part for several hours with a pad moistened with a five per cent. solution of zinc sulphate. A thread of lint soaked in a two per cent. solution of sulphate of zinc was then inserted in the nail fold and a pad, zinc terminal, and current applied. The skin which on the previous day had been red and angry became paler and wrinkled. The thick purulent discharge gave way to a thin bloody discharge. In a few days recovery was complete.

Passage of Fluid through the Body of the Human Stomach, by Geoffrey Jefferson.—It has been shown that in a great majority of patients, the course of the food entering the stomach is along the lesser curvature. It passes down in a narrow stream and is not spread over the greater curvature as might be supposed; for food enters the stomach with considerable force, and the lowest part of the esophagus turns to the left rather abruptly, entering the stomach at a wide angle. In a small number of patients it streams over the walls in its descent through the stomach. These stomachs are of the hypotonic type, the lower borders reaching well below the umbilicus, and it is possible that this loss of tone accounts for the diffusion of the food. The adult human stomach shows no indication of a canal along the lesser curvature, but such a canal exists in the fetus and is perfectly developed in ruminants. However, the mucous membrane is thrown into three distinct longitudinal folds along the lesser curvature, whereas in other parts of the stomach the mucous ridges are trabeculated. The only muscular fibres entering these folds are those of the *musculares mucosæ* which are insufficient to cause the food to take this direction, but in dissect-

ing the musculature of the stomach when held in a vertical position (which according to radiography is the correct position) it is found that the oblique muscle stratum is arranged longitudinally along the lesser curvature and herein lies the explanation of the fact that food descends through the stomach in this way.

Radiography in Diseases of the Accessory Nasal Sinuses, by H. Martin Berry.—In the author's system five positions are employed: Postero-anterior, oblique, lateral, vertical, and anteroposterior. The radiographs should be taken in the seated position. The nasomeatal plane, which includes the nasofrontal articulation and the centre of the external auditory meatus, is the one adopted. The distance of the nasofrontal articulation should be one inch above the central ray and the distance from the anticathode to the plate should be twenty-two inches. The ethmoidal cells are seen on the inner wall of the orbit. The frontal sinuses are very evident and the clear areas seen under the orbits are the maxillary antra. A band of shadow caused by the petrous portion of the temporal bone crosses them. The frontal sinuses are liable to great variations in extent; while it is not uncommon to meet with large ethmoid cells which invade the lesser wings of the sphenoid or the orbital plate of the frontal bone. The chief variation in the maxillary antrum is its prolongation downward.

JOURNAL OF NERVOUS AND MENTAL DISEASE.

May, 1915.

The Spinal Cord in Isolated Atrophy of the Small Muscles of the Hands, by Mary Elizabeth Morse.—A case of isolated atrophy of the small muscles of the hands of uncertain etiology in a man aged fifty-eight years, of alcoholic habits, is reported. The essentials of the lesion in the cord were: 1. Atrophic and degenerative changes in the nerve cells, widely distributed in the gray matter, but more prominent in the lateral and posterolateral columns. 2. Cell losses in the same columns. 3. Vascular changes, consisting of a thickening and a mild perivascular lymphocytic infiltration, the last confined almost entirely to the sulcal arteries and their branches to the anterior horns. 4. A characteristic distribution, the lesion commencing in the middle of the seventh cervical and extending through the first dorsal segment.

Cerebellar Syndrome, by W. F. Schaller.—Schaller describes the various symptoms met with in cerebellar disease, but finally says that it is impossible to state that any one of them is absolutely trustworthy. He considers the distinctive ones to be ataxia of the cerebellar type, asynergia, adiadochocinesis, and cerebellar catalepsy, the falling symptom, and variations from the normal in the functional labyrinthine tests, and the pointing reactions of Bárány. Those produced by intracranial pressure, nausea, vomiting, vertigo, choked disc, and nystagmus, are less characteristic.

OPHTHALMIC RECORD.

May, 1915.

False Heterophoria and Heterotropia, by Ernest E. Maddox.—This writer attempts to investigate a subtle danger which appears to have been

overlooked—that of diagnosing a vertical or horizontal deviation by our present tests, when in reality there is none. He shows that when cyclophoria exists, a false diagnosis of hyperphoria may be obtained from the phorometer, and even from a test with his own rod. His conclusions are that false heterophoria need be looked for only in the presence of anisocyclotropia (spontaneous or artificial) combined with a swinging deviation, either of the eye spontaneously, or of the image by a prism, or both. The amount of this error is a definite quantity, and may be calculated by multiplying the two deviations together and dividing by 57, if the calculations are all in degrees, or by 100 if they are all concentric. False elements of the diplopia are always present in paralyses of the vertically acting muscles. He believes that the glass rod test evades false heterophoria altogether if care is taken to keep the rods vertical or horizontal.

Reflex Ocular Disturbances Due to Impacted Third Molars, by Howard V. Dutrow.—A man aged twenty-two years complained of pain and a peculiar drawing sensation about his eyes, but nothing wrong could be found in the latter. An angular deflection of the septum jutting into the inferior turbinate was removed by submucous resection, but the removal failed to give permanent relief. On the contrary he began to have attacks of severe headache followed and temporarily relieved by vomiting, and he manifested paralysis of the left external rectus. Skiagraphs of the accessory sinuses were negative, but incidentally revealed an impaction of the third molars. These were extracted by a dentist and improvement immediately began. Within a month the headache, gastric symptoms, and paralysis were entirely gone and the muscle balance was normal. This case belongs to the class of remote reflex disturbances that taxes every means at our disposal to reach an intelligent diagnosis.

Proceedings of Societies.

NEUROLOGICAL INSTITUTE OF NEW YORK.

Clinical Conference, Held March 4, 1915.

Dr. J. RAMSAY HUNT in the Chair.

Congenital Cerebellar Ataxia.—Dr. C. L. DANA presented a case of cerebellar ataxia with involvement of the optic and oculomotor nerves. The patient was Joseph S., eleven years old, one of four children, the first two healthy, the third hydrocephalic, who had convulsions and died a short time after birth. The patient, the fourth child, was born after a hard labor, but had no convulsions nor symptoms of head pressure. He was first seen by Doctor Dana when he was nine months old. At that time the child was well nourished and presented no symptoms of paralysis. It moved the extremities in a normal way and there were no signs of involvement of the pyramidal tracts. There were continual nystagmoid movements of the eyeballs. The pupils were uneven and it was evident that the child did not see very well. The hearing, however, was normal,

as were other special senses apparently. The head was of an irregular shape, the great circumference forty-five cm. At that time the diagnosis made was that of congenital hydrocephalus, for the eye movements had been present since the time of birth. The patient was seen again in February, 1914, being then eleven years old. He was a well grown boy with a good shaped head, but apparently somewhat retarded intelligence. His attitude was cerebellar in character, the head being held to one side, and the chin somewhat elevated. The position of the body was also somewhat one sided and cerebellar in type. His muscular development was good and there was no evidence of involvement of the pyramidal tracts, no spasticity in gait, nor hypotonia. He walked with a broad base, spreading out the feet and stumbling sometimes to one side and sometimes to the other. He could not walk a line. He could stand with the eyes closed. There were some unsteady and jerky movements of the hands. Examination of the cranial nerves by Dr. Ward A. Holden showed that the optic discs were pale, and there was a simple atrophy. Vision in the right was 21/100 and in the left 3/200. In the right there was contraction of the visual field; in the left, central scotoma. There was a left convergent strabismus, but apparently no ocular palsy. There was a very active nystagmus in all directions. Pupils responded to light and convergence. Sensibility of the cornea was normal. The acoustic and other cranial nerves were normal. The knee jerks were present and equal. The plantar response was flexor. The abdominal reflexes were present. Speech was somewhat slurring in character. The pointing tests showed constant failure to locate the finger at a definite point with the eyes closed, the hand going always to the left. There was a slight diadochocinesis, but no dysmetria. The mental examination by Miss Hannahs showed the patient to be of the mental age of about seven years, but he seemed not to be typically feeble-minded, his mental condition having been seriously handicapped by his partial blindness and his unsteady equilibrium. The laboratory examinations showed that he had a rather typical hypothyroid blood picture, i. e., red cells normal; white blood cells, 10,000; neutrophils, fifty-five per cent.; small lymphocytes, twenty-seven per cent.; large lymphocytes, fourteen per cent.; eosinophiles, three per cent.; transitionals, one per cent. The urine was normal. The blood and cerebrospinal fluid were negative. The general picture was that of a boy physically well grown, mentally retarded about four years, owing largely to lack of education and his physical handicap, a very characteristic cerebellar attitude and gait, some jerky movements of the hands, unsteadiness of the arms, active nystagmus movements of the eyes, and partial atrophy of the optic nerve. But the condition was not progressing and the defect was a congenital one which had involved the functions of the cerebellum, or cerebellomidbrain tracts. The case did not belong, apparently, to types of hereditary cerebellar ataxia, but to those of congenital cerebellar ataxia. It was not, however, one of the type called cerebellar diplegia, described by Clark and others, but a sporadic congenital trouble, due to meningeal irritation and accompanying degeneration of coordinating cerebellar tracts.

Tumor of the Acoustic Nerve.—Dr. JOSEPH COLLINS presented from the first division, a patient twenty-nine years of age, who was sent to the Neurological Institute of New York, March 1, 1915, from the Manhattan Eye and Ear Hospital, with the report that he had a marked papilloedema. The family history was negative. In 1906 and 1908, he had a soft chancre, and was given small doses of mercury by mouth for about five weeks after each infection. There had been no history of secondary manifestations of syphilis. The present illness began about seven years ago with periodical singing in the right ear and gradual loss of hearing on the same side. Occasionally he would have headache for short periods in the frontal region. Except for the foregoing symptoms he had felt quite well until about two years ago, when the following symptoms appeared: 1. Dizziness, at first present only when he suddenly bent forward. It gradually became more marked, and during the last six months was usually present on walking. The vertigo was of the subjective type. 2. Headache, moderate, low occipital, which was present the great part of the time. 3. Staggering and awkwardness in using the right arm and leg. 4. Periods of diplopia, which occurred when the vertigo was marked. During the past six months he had noticed, aside from the diplopia, that he could not see as distinctly when the dizziness was severe. At other times the vision was unimpaired. He had noticed no change in his speech, nor difficulty in swallowing. There had been no vomiting, paresthesias, nor disturbance of the organic reflexes. For the past two or three years he had noticed that he could not breathe freely through the right nostril. The patient was a fairly well nourished, normally developed man. He showed no evidences of mental symptoms. The pulse was regular and the rate was 70. On walking, there was a moderate staggering, with a tendency to go to the right. When standing with the feet close together, at times he swayed, and on one occasion fell to the right. There was a moderate asynergia of the right arm and leg, manifested by hypermetria and diadochocinesis. There was no incoordination of the tongue, and no tremor of the tongue or hands. The pupils were equal, regular, and reacted promptly to light and in accommodation. Motility of the eyeballs was normal. There was a coarse nystagmus to the right, and a fine nystagmus to the left. Both fundi showed a papilloedema of four diopters. Sensation of the face was normal. The corneal reflex was slightly reduced on both sides, but more on the right than on the left. The jaw jerk was rather active.

The otological examination by Dr. E. B. Dench showed the following: Both tympanic membranes were thickened and depressed. Hearing by air conduction, absent on the right and normally acute on the left; by bone conduction, absent on the right and somewhat reduced on the left. Irrigation of the right ear with cold water had no effect on the nystagmus; of the left ear increased the nystagmus. Before irrigation the patient overpointed to right with the right hand, after irrigation of left ear, with cold water, he did not overpoint. Rotation did not affect the overpointing. The double galvanic current gave no apparent reaction. The right facial muscles at times seemed to be less well innervated than the

left. The tongue was normal in appearance and was protruded in the midline. The pharynx and the larynx showed no abnormality. The speech seemed somewhat thick, but was not definitely impaired. The deep reflexes were all quite active, but there was no Babinski, Hoffman, nor clonus. There was no muscular weakness or atrophy. The abdominal and epigastric reflexes were present, but distinctly more active on the right than on the left. The cremasteric reflexes were active and equal. No evidence whatever of impairment of sensation, including postural sense, could be made out. There was no asymbolia or astereognosis. The viscera were entirely negative. Blood pressure was 120. The Wassermann was negative in both blood and spinal fluid. The latter showed no cells, but a marked excess of globulin. The Fehling's reduction was present.

The history of periodical tinnitus, with gradually developing deafness and occasional frontal headache, followed after several years by vertigo, ataxia, homolateral incoordination, occipital headache, transient diplopia, and finally disturbance of vision, was quite typical of a slowly growing tumor of the acoustic nerve, first causing irritative phenomena of the nerve, then destruction of function, and finally involving, probably by pressure, the cerebellum. The only unusual feature of the case was the very slight evidence of involvement of the bulb and cranial nerves, shown only by partial reduction of the corneal reflex, indefinite weakness of the facial muscles, and difference in the activity of the abdominal reflexes.

Nonpurulent Secondary Meningitis.—Dr. WALTER TIMME, of the third division, presented a boy, five years of age, who entered the Neurological Institute, January 10, 1915, unable to walk and complaining of pain in his legs. This had been going on for one week, becoming progressively worse. One month before, on December 10, 1914, he had an attack of vomiting, which continued at intervals for two days. After a physic, this ceased and he felt better. On January 3d, the father noticed the child walked peculiarly, and both legs were tender and painful. A physician was called, who found the child had fever and that the spinal fluid was turbid, and referred him to the institute. Upon his arrival he had a slight rise in temperature, his gait and station were unsteady and uncertain, and his knee jerks were absent. There was a certain degree of rigidity of the neck muscles and a slight Kernig on both sides. There was also a *tache cérébrale*. All other signs negative or normal, except perhaps some slight atrophy of the lower muscles. At that time the serology was as follows: Clear fluid with forty-seven cells, almost exclusively lymphocytes, and with a negative Wassermann, and positive Fehling reduction. He had a follicular tonsillitis with a slight enlargement of the cervical glands. Four days later, January 14, 1915, the Kernig was still present, the neck rigidity had diminished, and the tonsillitis was gone. His pulse was slow, 68, irregular, and intermittent. During the following days the temperature alternated from normal to 102° F., at which time a unilateral bronchitis came on, which soon disappeared. The Kernig sign had also practically vanished, together with the neck rigidity, and the pulse

had become of normal frequency and character. The knee jerks had returned and locomotion had become reestablished with but slight incoordination of gait. A von Pirquet test done at this time was negative. A guineapig was also injected intraperitoneally with the spinal fluid, and remained well and normal in all respects. The spinal fluid, taken at three different times, showed gradual diminution of cellular elements, until the last one of January 22, 1915, showed but twenty-two cells. On January 26th, the boy was practically well. The case, therefore, presented conditions seen usually in mild forms of nonseptic meningitis secondary to toxic influences in other organs of the body. There had been a mild epidemic of gastrointestinal disturbances in this boy's neighborhood; he entered the institute with a follicular tonsillitis and secondary cervical adenitis, and soon thereafter developed a bronchitis with temperature at 102° F. His meningitis was probably a concomitant of this systemic disturbance. The other three possibilities were an aberrant form of anterior poliomyelitis, mild epidemic cerebrospinal meningitis, and a tuberculous meningitis. Against the diagnosis of anterior poliomyelitis of the meningitic type, there was the fact that no cases of this disease occurring in January had thus far been recorded; that as the meningitis subsided, no signs of a true poliomyelitis supervened. Against a mild epidemic cerebrospinal meningitis, there was the fact that the fluid, while the patient was at the institute, was never turbid, that there were practically no polynuclear cells in the fluid, and that the specific organism of this disease was not demonstrable in the cerebrospinal fluid. Against the tuberculous diagnosis, was the negative von Pirquet, that the injected guineapigs remained normal, that the boy had improved considerably in the short time at the institute, and that the fluid did not have the characteristic appearance macroscopically of that in a tuberculous meningitis. The case fell naturally into that group of mild secondary meningitides which so often accompanied the infectious diseases.

Tumor of the Pons varolii in a Child, without Optic Neuritis.—Dr. J. RAMSAY HUNT presented a boy, aged seven years, from the third division with the following history: Onset, two months before, with headaches which were inconstant and not of great severity, these persisted. One month later, there developed deviation of the eyes and a peculiar posture of the head, and at the same time some unsteadiness of gait, with occasional attacks of vomiting. He was sent to the Lincoln Hospital and transferred to the Neurological Institute on February 25, 1915, two months after the onset of cerebral symptoms. The course of the disease had been steadily progressive. He was an only child, and his family history was negative; both parents were alive and well. He had had mumps, chicken pox, and bronchitis, but no other illness. Two years ago, he was injured by a truck and suffered a fracture of the leg. In this accident he also received a head injury; recovery, however, was complete.

The child was unable to stand or walk on account of motor weakness and ataxia. There was considerable apathy and dullness, but he was easily aroused and was at times bright and talkative for several

hours. The headaches persisted and he vomited occasionally. There was considerable dysphagia, and the speech was dysarthric and typically bulbar. He understood perfectly, carried out all directions, and attempted to answer questions; sight and hearing were not impaired (coarse tests). Pupils were unequal and reacted promptly to light and accommodation. Convergence was feeble. There was complete paralysis of the associated movements of the eyes toward the right and to the left; the excursions upward and downward were prompt and normal; no ptosis. Corneal reflexes were present. Doctor Holden reported, on February 22d, optic discs normal; subsequently, March 5th, and again, on March 11th, no optic neuritis. There was a distinct facial palsy of peripheral type on the right side with contralateral hemiplegia. In addition to right facial palsy; there was weakness of the right fifth, with some deviation of the jaw toward the right. The jaw could only be partially opened, owing to spasm of the muscles (trismus). The jaw jerk, however, was active. The tongue was weak, and could not be protruded because of fixation of jaw. Palatal innervation could not be tested, owing to trismus. Both arms were ataxic, especially the left. Both legs were weak and ataxic, especially the left. Spasticity of both lower extremities existed with clonus and Babinski, left greater than right. Pain sensation was keen over face, trunk, and extremities, and was apparently equal on the two sides. There was no Kernig symptom and no rigidity of the neck. Pulse was rapid, 100 to 108 to the minute; respiration 20 and of regular rhythm; systolic blood pressure, 70 to 75; temperature not over 99° F.; urine free from sugar and albumin; Wassermann test negative, both of blood and cerebrospinal fluid; no increase of cells of cerebrospinal fluid. Examination of the heart, lungs, and abdominal organs proved negative.

This patient was presented as having probably tumor of the pons varolii. The focal symptoms were characteristic of this localization, i. e., paralysis of associated movements of the eyes, hemiplegia alternans with facial and trigeminal involvement; later, double hemiplegia much more marked upon the left side; bilateral ataxia, dysarthria, and dysphagia. Tumor was regarded as probable on account of the steady progression, the headache and vomiting, and the associated dullness and apathy. The absence of optic neuritis in this case would not militate strongly against the diagnosis of neoplasm, as it was a well recognized clinical fact, that in central tumors of the pons and medulla, optic neuritis was often absent. Indeed, Oppenheim stated in his experience it was the rule. It was thought that meningitis and encephalitis pontis could be excluded because of the nature of the onset, the steady progression, and the negative cerebrospinal fluid findings.

The common forms of tumor in this region were tuberculoma and glioma. As there were no indications of tuberculosis, glioma was regarded as more probable.

The patient died a few days after presentation, and the clinical diagnosis was verified. The pathological diagnosis was glioma pontis.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Pellagra II. Second Progress Report of the Thompson-McFadden Pellagra Commission of the New York Post-Graduate Medical School and Hospital. By J. F. SILER, M.D., Captain, Medical Corps, United States Army, P. E. GARRISON, M.D., Passed Assistant Surgeon, United States Navy, and W. J. MACNEAL, Ph.D., M.D., Assistant Director of Laboratories, New York Post-Graduate Medical School, with the Collaboration of H. DOUGLAS SINGER, M.D., PAUL A. SCHULE, M.D., O. S. HILLMAN, M.D., and Others. Pp. 160.

This report embodies a number of papers which have been published in the *Journal A. M. A.* and the *Archives of Internal Medicine* during the latter part of the preceding and the first part of the current years, but their collection into one volume does much to enhance the value of the individual parts by making them more readily available to the students of pellagra. The investigation is a direct continuation and extension of the work undertaken during the previous year in the Spartanburg district of South Carolina. The results of the investigations are summarized fully in the first paper in the series and the details are to be found in full in the succeeding six articles. Briefly all of the large and active foci of the disease were found in or near the larger centres of population, and especially in the cotton mill villages. Age seemed to be a factor of some importance in determining susceptibility. Children less than two years old, adolescents during the five years after puberty, and the adult males in the active period of life were the least susceptible. Adult women and children of both sexes between two years old and the age of puberty were the most susceptible. It was not possible to determine any definite relation between the occupation of the individuals and the occurrence of the disease, except so far as the occupation determined the mode of life and the hygiene of the individuals. It was possible to establish a close relationship between new cases and preexisting cases in the same house or close by, and the home seemed to be the place of most frequent contraction of the disease. No elements of the dietary could be incriminated, and there was especially no relation between the consumption of corn products and the development of the disease. Aside from the importance of close association with a case of pellagra, the occurrence of unsanitary and unscreened privies seems to be the most potent factor in the spread of pellagra. Sambon's theory of its spread through the agency of *Simulium* was not supported by the evidence obtained. No conclusive results have been obtained from attempted animal inoculations, a study of the intestinal flora of patients ill with the disease, or from efforts to connect lice, fleas, and bedbugs with the transmission. Although most cases have shown a lymphocytosis, there have been no constant abnormalities found in the blood of patients. Heredity does not seem to enter into its spread. When hygienic and dietetic treatment has been carried out, the immediate results have generally been good, but in most cases there were relapses when the patients returned to their former conditions of life. As a whole, the report is replete with interest as well as being a careful analytical presentation of scientific and comprehensive observations on this interesting ailment, the causation of which still baffles the best brains in medicine.

The Theory of Psychoanalysis. By C. G. JUNG, of Zurich. Nervous and Mental Disease Monograph Series, No. 19. New York: The Journal of Nervous and Mental Disease Publishing Company, 1915. Pp. iii-135. (Price, \$1.50.)

There can be very little question that Freud would have no difficulty in vindicating his right to restricting the term, psychoanalysis, to his theories and technic and in convicting Jung, the author of this book, of an infringement. The title of Jung's book is misleading in at least two respects; it is not an exposition of the psychoanalytic theory of Freud; secondly, the book does not deal with psychoanalysis at all, but with Jungism, i. e., Jung's departures from, and

alterations of Freudism. These latest modifications of the psychoanalytic theory are so sweeping and so far reaching that the end product bears almost no resemblance to the original. There is as little resemblance between Jungism and Freudism, notwithstanding Jung's protestations to the contrary, as between astrology and astronomy. Freud's theories are the results of careful scientific empiricism; Jung's of speculative mysticism. Freud held that in all psychoneuroses the ultimate roots of the symptoms lay in certain activities of childhood and infancy which could not be considered anything but sexual. He was able to convince himself that young children are not only not asexual, as has been hitherto supposed, but that they have a rich and varied sexual life. This conception has brought all sorts of abuse on Freud's head and on the Freudians. Jung, evidently unable to bear his share of this abuse, and finding here a loophole for escape from the fold of the Freudian school and, incidentally, a chance to found a school of his own, rejects the infantile sexual life. Freud's analyses convinced him that the root of nuclear complex in all the psychoneuroses is the *Œdipus* (or *Electra*) complex, that is, that at the bottom of every neurotic's ailment is an unconscious and repressed attachment to the parent of the opposite sex and, not infrequently, a hostility to the parent of the same sex. Jung retains the term, *Œdipus* complex, but gives the matter a symbolic interpretation. Jung asserts that the manifold sexual activities of childhood are not sexual; that they are presexual. He then proceeds to explain the life of the child in accordance with a preconceived theory as to the nature of the sexual instinct which will hardly bear scientific analysis or investigation. According to him, the mother represents the unattainable that man had to give up in the interests of culture, and the father represents the inner father from whom the individual must free himself to attain his independence. According to Jung, everything we do, even eating, is a manifestation of the libido; whereas the Freudians restrict the word, libido, to the sensuous (not sexual) element in our life. Jung attempts to cure his patients by what he calls a "reeducation," a concentration of their attention on the actual conflict which precipitated the neurosis. In other words, he substitutes lectures on religion, ethics, and duty for psychoanalysis. This is not psychoanalysis, but a combination of persuasion and suggestion.

The translation of this work of Jung's is extremely well done and might almost serve as a model for this kind of work; the ideas and spirit of the original are faithfully reproduced. The index, however, might easily have been more complete. On the whole, the book will serve as a fairly useful stepping stone from conventional psychology to Freud's psychology of the unconscious.

Interclinical Notes.

If It Comes to War is the title of some editorial correspondence in the *Outlook* for June 9, 1915, in which it is submitted that if the United States were drawn into war, we could count on 1,000,000 naturalized German citizens, all trained soldiers, 200,000 Austro-Americans similarly trained, and "several hundred thousand" Italian-American troops. The *Outlook* apparently does not see anything humorous in this army of, say, 1,600,000 trained soldiers without a single native born American in it. Mr. Lewis Edwin Theiss brings a most powerful indictment against alcoholic beverages; it does seem that unless legislation puts an absolute stop to the sale, the use of liquor will soon be confined to our "leisure class," if any. Business concerns are getting rid of alcoholized employees.

* * *

If our readers would like to enjoy a delicious account of English types of humanity, we commend to them English Viewpoints on the War, by Arthur Bullard, in the *Outlook* for June 9, 1915. Colonel Batesby and Sir George Plant could be transferred to fiction without the change of a hairstroke.

* * *

The *Nation* for June 3, 1915, reprints the substance of an address delivered on March 17th by Dr. George W. Crile, at Western Reserve University, Cleveland, on A Mechanis-

tic View of War. After reviewing some of the phenomena of the great war, Doctor Crile advances some theories as to how war might be prevented in the future. "In man we are dealing with a red handed glutton whose phylogenetic action patterns are facilitated for the killing of his own and other species. The question at once is this: Can such an animal, bloodthirsty by nature and training, who produces and kills hundreds of millions of animals yearly, and who kills at intervals hundreds of thousands of his fellow men, can he be so modified as to live in peace? . . . The following is a theoretical suggestion: We must begin in the nursery, in the school, in the university, in our literature, in our daily papers, magazines, books. In all of these war should be mentioned only to be shown as anti-social; to be condemned. Battleships, forts, guns, armor, all the trappings of war should be eliminated from the web of life, both from the physical and the symbolic side. Literature and art and song should be war sterilized, and the heroes to children should be those who have made possible the conquest of nature through invention and discovery; those who have striven for and achieved great ideals of government, of education, and of morals; and those who have advanced the lot of man by the priceless gift of adding a fact to the world's knowledge. Peace has as worthy heroes as war! As a means of invigorating ourselves through struggle and contest, we should increase the resources of sports and games; increase the struggle against natural forces. Some day we may be intelligent enough to have the great talent of a country not at the head of armies or boards of strategy, not in finance or industry, but at the head of the State educational systems. Backed by money and public opinion, a group of supermen may evolve a system of mechanistic training which will create in the next generation a higher degree of adaptation to environment, an increased fitness for service for countries and people. Man at last will see that his destiny is in his own hands, that there is no active supernatural power that will help or hinder his career; in fact, that his destiny in part has been determined by his evolution, and that the balance of his destiny is to be man made here and now."

* * *

The Germans have so far been reticent as to details of their Red Cross and sanitary work in the field. The Leaves from a War Surgeon's Diary, in *Leslie's* for June 10th, will, therefore, probably attract unusual attention. They are written by Fritz Arno Wagner, *Leslie's* special correspondent at the front, and are illustrated by three photographs we do not remember to have seen elsewhere. Mr. Wagner states that at the beginning of May, there were in Germany not fewer than one million sick and wounded soldiers, friends and foes. From the way that Russian shells explode in this account, there does not seem to be any shortage.

* * *

The Riddle of Nervousness is an anonymous article in the handsome *Metropolitan* for June. After taking all kinds of foods and tonics, the author says he was cured by first regarding his condition as a faulty and mistaken way of behaving. It is difficult to list the other good things in this magazine. There is a splendid short story, Somewhere in France, by Richard Harding Davis, and some other good stories too, short and long. The pictures, as is usual in this periodical, are very handsome, save the caricatures which are original and funny. The editor manages somehow to keep the politics well up to date, and the reader can always rely on the latest announcements from the socialists. Altogether the *Metropolitan* offers a couple of hours of fascinating and informing reading.

Meetings of Local Medical Societies.

MONDAY, June 21st.—New York Academy of Medicine (Section in Ophthalmology); Medical Society of the County of Erie; Elmira Clinical Society.

TUESDAY, June 22d.—New York Psychoanalytic Society; Valentine Mott Medical Society, New York; Washington Heights Medical Society, New York.

WEDNESDAY, June 23d.—New York Academy of Medicine (Section in Laryngology and Rhinology).

THURSDAY, June 24th.—New York Academy of Medicine (Section in Obstetrics and Gynecology; Ex-Intern Society of Seney Hospital, Brooklyn; Medical Union, Buffalo; New York Physicians' Association.

FRIDAY, June 25th.—Italian Medical Society of New York.

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending June 9, 1915:

Bogges, John S., Surgeon. Relieved from duty at Yokohama, Japan, and directed to proceed to San Francisco, Cal., and await further instructions. **Clark**, Taliaferro, Surgeon. Directed to proceed to the National Junior Republic, Annapolis Junction, Md., for the purpose of making a sanitary survey. **Cobb**, J. O., Surgeon. Directed to proceed or to send Assistant Surgeon C. L. Williams, or Sanitary Engineer H. P. Letton, to such points as may be necessary for the investigation of sanitary conditions of the Great Lakes. **Cofer**, L. E., Assistant Surgeon General. Granted six days' leave of absence from June 14, 1915. **Crohurst**, H. R., Sanitary Engineer. Directed to proceed to such points as may be necessary on the Ohio River Watershed for the collection of data and making surveys of industrial wastes. **Gillespie**, J. M., Passed Assistant Surgeon. Granted five days' leave of absence from June 2, 1915, under paragraph 195 of the Service Regulations. **Glover**, M. W., Surgeon. Directed to attend the meeting of the American Academy of Medicine at San Francisco, Cal., June 25-28, 1915, to present a paper on The Power of Quarantine and Its Relation to Commerce. **Haskins**, C. A., Sanitary Engineer. Directed to proceed to Trenton, N. J., and other places in New Jersey and adjoining States to make a sanitary reconnaissance of the watersheds of streams flowing through or bordering on New Jersey. **Hughes**, Thomas E., Assistant Surgeon. Granted twenty days' leave of absence from June 12, 1915. **Kerr**, J. W., Assistant Surgeon General. Granted fifteen days' leave of absence en route returning to Washington, D. C. **Kolb**, Lawrence, Passed Assistant Surgeon. Granted eighteen days' leave of absence from June 11, 1915. **Mathewson**, H. S., Surgeon. Granted seven days' leave of absence from June 20, 1915. **Miller**, K. E., Assistant Surgeon. Directed to proceed to Dallas County, Iowa, to assume charge of the investigations of rural sanitation in that county. **Neill**, M. H., Assistant Surgeon. Granted twenty-one days' leave of absence from June 24, 1915. **Parcher**, George, Assistant Surgeon. Directed to proceed to Marcus Hook, Pa., for temporary duty during the absence on leave of Assistant Surgeon Louis Schwartz. **Safford**, M. Victor, Assistant Surgeon. Granted two days' leave of absence from June 21, 1915. **Schwartz**, Louis, Assistant Surgeon. Granted one month's leave of absence from June 15, 1915. **Stimson**, A. M., Surgeon. Granted one month's leave of absence from July 1, 1915. **Waller**, C. E., Assistant Surgeon. Directed to assist Surgeon H. S. Cumming in the investigations of the pollution of coastal waters in New Jersey and adjoining States. **Wayson**, N. E., Assistant Surgeon. Directed to represent the Service at the meeting of the American Society of Tropical Medicine at San Francisco, Cal., June 14-16, 1915. **White**, J. H., Senior Surgeon. Directed to deliver a series of lectures on sanitation and hygiene at the Summer School of the South, to be held at the University of Tennessee, Knoxville, Tenn., June 22, July 9, 1915. **Williams**, L. L., Surgeon. Directed to report at Bureau, June 3, 1915, for conference. **Woodward**, R. M., Surgeon. Directed to attend a meeting of the American Academy of Medicine, San Francisco, Cal., June 25-28, 1915. **Young**, G. B., Surgeon. Granted one day's leave of absence, June 7, 1915, under Paragraph 193 of the Service Regulations.

Boards Convened.

Board of commissioned medical officers convened to meet at the Marine Hospital, Stapleton, N. Y., June 5, 1915, for the physical examination of an acting master's mate, United States Coast Guard, for promotion. Detail for the board: Senior Surgeon George W. Stoner, chairman; Passed Assistant Surgeon C. P. Knight, recorder. Board of medical officers convened to meet for the reexamination of an alien. Detail for the board: Surgeon B. J. Lloyd, chairman; Assistant Surgeon D. S. Baughman, member; Acting Assistant Surgeon F. R. Underwood or F. J. Schug, recorder. Board of Medical officers convened to meet at Vancouver, B. C., for the reexamination of certain aliens. Detail for the board: Assistant Surgeon D. S. Baughman, chairman; Acting Assistant Surgeon H. R. Storrs, recorder.

United States Army Intelligence:

Official list of changes in the stations and duties of officers serving in the Medical Corps of the United States Army for the week ending June 12, 1915:

Bloombergh, Horace D., Major. Directed to proceed to Hawaii on the transport to sail from San Francisco, Cal., on or about October 5, 1915, instead of August 5, 1915. **Buntin**, Grover C., First Lieutenant, Medical Reserve Corps. Relieved from duty at the Army Medical School, Washington, D. C., to take effect July 1, 1915, and will then proceed to his home; upon arrival there will report by telegraph to the Adjutant General of the Army. **Fruitnight**, Henry S., First Lieutenant, Medical Reserve Corps. Ordered to active duty in the service of the United States on account of an existing emergency, to take effect on July 1, 1915, and will then proceed to Fort Terry, New York, and report in person to the commanding officer thereof for duty and by letter to the commanding general, Eastern Department. **Heaton**, William D., First Lieutenant, Medical Reserve Corps. Relieved from duty at the Army Medical School, Washington, D. C., to take effect July 1, 1915, and will then proceed to his home; upon arrival there, will report by telegraph to the Adjutant General of the Army. **Herbert**, William D., First Lieutenant, Medical Corps. Relieved from duty at Fort Sam Houston, Texas, and ordered to proceed to Fort Bliss, Texas, and report to the commanding officer, Fifteenth Cavalry, for duty with that organization en route to San Francisco, Cal., and then proceed on the transport to sail from San Francisco, Cal., on or about July 15, 1915, for the Philippine Islands. **Koerper**, Conrad E., Major, Medical Corps. Relieved from duty with Field Hospital Company No. 5, and will report to the commanding general of the Second Division for assignment of duty. **Leary**, Thomas J., Captain, Medical Corps. Granted one month's leave of absence, to take effect upon relief from duty at the Walter Reed General Hospital, Washington, D. C. **Lowell**, Charles H., First Lieutenant, Medical Reserve Corps. Honorably discharged from the service of the United States, his services being no longer required. **Magill**, William S., First Lieutenant, Medical Reserve Corps. Honorably discharged from the service of the United States, his services being no longer required. **Murtagh**, J. A., Major, Medical Corps. Granted three months' leave of absence to commence about July 6, 1915. **Rich**, Edwin W., Major, Medical Corps. Granted two months' leave of absence, to take effect when his services can be spared. **Scudder**, John H. H., First Lieutenant, Medical Corps. Relieved from duty at Fort Bliss, Texas, and ordered to report to the commanding officer of the Fifteenth Cavalry for duty with that organization en route to San Francisco, Cal., and then proceed on the transport to sail from San Francisco on or about July 15, 1915, for the Philippine Islands. **Sherwood**, John W., First Lieutenant, Medical Corps. Relieved from duty at Fort Bliss, Texas, to take effect at such time as will enable him to comply with this order, and will report in person at the proper time to the commanding officer, Fifteenth Cavalry, for duty with that organization en route to San Francisco, Cal., and after arrival at that place will proceed on the transport to sail from San Francisco on or about July 5, 1915, for the Philippine Islands, and report in person to the commanding general of the Philippine Department for assignment to duty. **Thompson**, Ralph L.,

First Lieutenant, Medical Reserve Corps. Resignation of his commission in the Medical Reserve Corps has been accepted by the President, to take effect June 7, 1915.

Births, Marriages, and Deaths.*Married.*

Briggs—Hendee.—In Burlington, Vt., on Wednesday, June 2d, Dr. Frederick Sumner Briggs, of White Plains, N. Y., and Miss Nellie Dodge Hendee. **Corbett—Donovan.**—In Lynn, Mass., on Wednesday, June 2d, Dr. Jeremiah J. Corbett, of Malden, Mass., and Miss Marguerite M. Donovan. **Crawshaw—Andrews.**—In Malad, Idaho, on Tuesday, June 1st, Dr. L. H. Crawshaw, of Ogden, Utah, and Mrs. Jane Petty Andrews. **Haines—Pettengill.**—In Chelsea, Mass., on Saturday, June 5th, Dr. George A. Haines and Miss Jennie A. Pettengill. **Hamilton—Derstine.**—In New York, on Wednesday, June 9th, Dr. Hugh Hamilton and Miss Florence Sarles Derstine. **Janes—Lee.**—In Northampton, Mass., on Wednesday, June 9th, Dr. Benjamin F. Janes, Jr., and Miss Ruth Lee. **Miller—George.**—In Philadelphia, on Thursday, June 3d, Dr. T. Grier Miller and Miss Sara Fenner George. **Seitz—Heitschue.**—In Glen Rock, Pa., on Wednesday, June 2d, Dr. Clyde L. Seitz and Miss Florence Elizabeth Heitschue.

Died.

Allen.—In Colorado Springs, Colo., on Wednesday, June 2d, Dr. William C. Allen, aged sixty-one years. **Anderson.**—In Lake George, N. Y., on Thursday, May 27th, Dr. David Ballantyne Anderson, aged twenty-seven years. **Cole.**—In Chicago, Ill., on Saturday, June 5th, Dr. Samuel Cole, aged seventy years. **Colgrove.**—In Willimantic, Conn., on Saturday, May 29th, Dr. Charles H. Colgrove, aged seventy-four years. **Cooper.**—In St. Cloud, Fla., on Tuesday, May 18th, Dr. Charles Cooper, aged seventy-two years. **Culpepper.**—In Cullman, Ala., on Thursday, May 27th, Dr. James W. Culpepper, aged thirty-nine years. **Floyd.**—In Mount Tabor, N. C., on Friday, June 4th, Dr. Walker Floyd, aged forty-one years. **Goodman.**—In Altoona, Pa., on Tuesday, June 1st, Dr. Edward E. Goodman, aged sixty-six years. **Guess.**—In East Durham, N. C., on Sunday, May 30th, Dr. W. G. Guess, aged eighty-three years. **Guthrie.**—In Scranton, Pa., on Tuesday, June 1st, Dr. George W. Guthrie, aged sixty years. **Hahn.**—In Omaha, Neb., on Saturday, May 29th, Dr. Gustav Hahn, aged fifty-two years. **Harrington.**—In Wadena, Iowa, on Thursday, June 3d, Dr. J. F. Harrington, aged forty-three years. **Johnson.**—In Greenfield, N. Y., on Monday, May 31st, Dr. Ianthus G. Johnson, aged eighty-six years. **McCormick.**—In Lancaster, Pa., on Tuesday, June 1st, Dr. Daniel R. McCormick, aged fifty years. **Metts.**—In Ossian, Ind., on Thursday, June 3d, Dr. A. M. Metts, aged seventy-seven years. **Michaux.**—In Richmond, Va., on Monday, June 7th, Dr. Jacob Michaux, aged sixty-four years. **Miller.**—In Schenectady, N. Y., on Sunday, June 6th, Dr. Jay J. Miller, aged eighty-one years. **Misenheimer.**—In Morven, N. C., on Wednesday, May 26th, Dr. Thomas F. Misenheimer, aged sixty-five years. **Palmer.**—In New York, on Thursday, June 10th, Dr. Arthur W. Palmer, aged fifty-four years. **Prevett.**—In Derry, N. H., on Sunday, June 6th, Dr. Joseph Prevett, of Boston, aged thirty-four years. **Ruickoldt.**—In New Haven, Conn., on Wednesday, June 2d, Dr. F. Arthur Ruickoldt, aged seventy-five years. **Russell.**—In Wilmington, N. C., on Friday, June 4th, Dr. Frank Havens Russell, aged forty-four years. **Sherk.**—In Philadelphia, on Tuesday, June 1st, Dr. Henry H. Sherk, of Camden, N. J., aged fifty-six years. **Slocum.**—In Toledo, Ohio, on Monday, June 7th, Dr. C. E. Slocum, aged seventy-four years. **Smith.**—In Vanceboro, N. C., on Saturday, May 29th, Dr. Benjamin J. Smith, aged sixty-nine years. **Spencer.**—In West Winfield, N. Y., on Saturday, May 29th, Dr. Herbert J. Spencer, aged sixty-eight years. **Staton.**—In Harrisburg, Va., on Tuesday, June 8th, Dr. Lee Whitfield Staton, aged fifty-eight years. **Ward.**—In Albany, N. Y., on Thursday, June 3d, Dr. Samuel Baldwin Ward, aged seventy-two years.

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Lectures and Addresses.

THE WORK OF THE AMERICAN MEDICAL ASSOCIATION.*

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In assuming the presidency of the largest and most important medical organization in the world, and at the time of its greatest achievements, I am overcome with humility and a consciousness of my own limitations. Profoundly grateful for so signal and unmerited an honor, I shall ask that the same partiality which placed your standard in my hands, strengthen and support me until I shall have transferred it, unsullied and undimmed, into the hands of my successor.

With your help I may succeed; without it, failure is certain; therefore, grant it me in unstinted measure.

As the splendid work of the association, carried on by its officers and several councils, has not been reviewed by my immediate predecessors, it would seem eminently fitting that I should, at this time, attempt a retrospect of some of its most noteworthy achievements, and incidentally point out how, with your cooperation, other equally desirable results may reasonably and certainly be attained.

THE AMERICAN COLLEGE OF SURGEONS.

As the American Medical Association always stands for altruism and noble endeavor, it is my first duty, as well as my great pleasure, to congratulate most heartily the officers, board of regents and Fellows upon the auspicious beginning of the American College of Surgeons, its achievements, and its splendid aspirations. It has already, in its brief existence, accomplished much in elevating the general tone and level of American surgery, and met all reasonable expectations of its sponsors. The college was organized to fill a distinct need, and its aims and purposes were well presented by its president, Dr. J. M. T. Finney, at the inaugural meeting in Chicago, in November, 1913, in an address which was notable for its ability, sincerity, and lofty character. With a rare and keen discrimination, equaled only by the courage shown, he pointed out the weaknesses in our armor, and the professional obligation of all to overcome them. I cannot do better than quote some of his forceful words, and, further, to express the hope that every member of the profession, in or out

of college, will read and read again the entire address:

The aim of this new organization and the reason for its existence lie in its disinterested and unselfish efforts to elevate the standards of the profession, moral as well as intellectual, to foster research, to educate the public up to the idea that there is a difference between the honest, conscientious, well trained surgeon and the purely commercial operator, the charlatan and the quack; furthermore, that the term "surgeon" means something more than a suave manner, a glib tongue, a private hospital, a press agent, and the all too easily acquired diploma. The standardization of surgery is absolutely essential to guard the public against such as these, as well as to preserve the honor of the guild itself. So far as the public is concerned, it is necessary to protect it from the wolves in sheep's clothing, from those who would prostitute their high office for the purpose of gain; from the ignorant and the untrained; from those who by reason of the lack of surgical judgment and skill are incompetent. That such are present in considerable numbers in our profession, and that they continue to ply their nefarious trade in every community of any size, with reckless disregard of the consequences, unfortunately cannot be denied. Are we to sit idly by while the fair name and fame of our profession are being dishonored and defiled? Is there nothing that we can do to protect the public and ourselves? Our presence here this evening is an answer to these questions. The American College of Surgeons has been called into being as an active, vigorous, virile protest upon the part of the profession itself against this unhappy state of affairs.¹

Nò one who impartially reviews the work of the college, conducted as it has been by officers and a board of regents of the highest personal and professional standing, can withhold from them a large measure of praise for unselfishness, devotion to the cause, and a very evident intention to be true to the highest ideals of the profession.

In every community men are operating who have no right to take human life into their hands. This does not apply to the general practitioner who, in an emergency, and to the best of his ability, operates in an attempt to save life, but to those who, for gain, undertake that which should be done only by the skillful surgeon. Surgery is a special science, extra-hazardous in its nature, and hence the public has a right to demand of the surgeon the very highest physical, mental, and moral equipment.

The positive stand the college has taken on fee-splitting alone more than justifies its existence. This evil has become intolerable, and a wave of protest is rising throughout the land which should, and we believe will, overwhelm the offenders. Reform is bound to come, and the public will surely take the initiative if we do not. In some States the legislatures have already enacted laws constituting fee-splitting a crime. But it is most undesirable that our

*President's address before the American Medical Association at the Sixty-sixth Annual Session, San Francisco, June 22, 1915.

¹Finney, J. M. T., American College of Surgeons, presidential address, delivered at the first convocation of the college, Chicago, Nov. 13, 1913.

problems and shame should be corrected by legislators who imperfectly understand the real conditions. Let us at once apply the ax to the root, make this nefarious practice impossible, drive from the surgical temple those who defile it, and let their names and methods be anathema maranatha. If there be those within the ranks of the college who are at this time tainted with commercialism, it was not so intended by the board of regents, and they will make short shrift of any one caught *flagrante delicto*. I hold no brief for the board of regents, but am acquainted with every one of its members, and am satisfied that the honor of American surgery is safe in their hands. Undoubtedly mistakes have been, and others will be, made. But shall we expect human prescience to do that which Christ Himself did not do? Did He not in selecting His disciples choose Thomas who doubted, Peter who denied, and Judas who betrayed Him?

COUNCIL ON HEALTH AND PUBLIC INSTRUCTION.

The Council on Health and Public Instruction continues to investigate health conditions, to educate the public, and to foster a sentiment that will force the enactment of health laws. We are better prepared today to prevent disease and to save life than ever before; but we need the confidence and intelligent cooperation of the people before the work can be satisfactorily accomplished.

The council is in touch with the newspapers, and since the press bureau was established three years ago, has issued 164 bulletins for publication in 4,900 newspapers. These bulletins are made up of extracts and abstracts of editorial and original articles from the *Journal A. M. A.*, with occasional articles on popular health topics, contributed by prominent members of our association, but published without signatures.

Popular write-ups on medical subjects are too often but garbled statements of medical facts. Yet the daily press wishes, and has a right, to publish what the people want to read. In Kings county, N. Y., a publicity committee has cooperated with newspaper editors in working out a plan for getting truthful reports of interviews on medical topics. This scheme has worked so admirably that the judicial council recommended to the House of Delegates the formation of such a publicity committee in every county medical society in the country.

Another plan of the council is to unite all of the public health organizations into a national league. With this in view, it has been suggested that the various public health organizations hold their 1916 annual meetings at the same time and place. Special societies, such as those for the study of tuberculosis, cancer, infant mortality, etc., might be made sections of this national league, which would be a great advantage to them.

The Bureau of Literature has circulated pamphlets on health topics, notably on cancer, which at this time is being given great attention, not only by our association, but by the American Society for the Control of Cancer, by a cancer committee appointed by the Clinical Congress of Surgeons of North America, by the Cancer Commission of Harvard University, and by State and municipal commissions as well, all working to the same end, namely, the en-

lightenment of the public as to the early symptoms of cancer, the necessity for prompt surgical intervention, and the danger of running after false gods.

Several speakers connected with this bureau have told me of the large and interested lay audiences they have addressed in different parts of the country, and I myself have had a similar experience in the States of Maryland, Virginia, North Carolina, Ohio, Missouri, Illinois, Minnesota, New Jersey, and Pennsylvania. I have also been assured by local physicians in the cities and towns visited by such lecturers on cancer that the results have been most encouraging, and in many instances have led to early operation where, without such knowledge, the patient might possibly not have been operated on at all. I believe that the association has done, and can do, no better work. In addition to the agencies already named, the Federal government, through the director of the census, announces a new departure which should be welcomed. When the 1914 returns come in from the United States registration area, they will be made the subject of a special monograph on cancer. The deaths will be classified under some thirty headings, instead of seven as heretofore, and according to the region or organ affected, which is the arrangement followed in the standard reports of the registrar general of England and Wales. While not germane to the cancer question, it is of interest to note that the government Public Health Service also has undertaken a new work in beginning a sanitary investigation of navigable waters, thus far confined to the Potomac, Ohio, the shores of the Atlantic, and the Gulf. This promises to be of vast interest and benefit to the entire country.

Many committees have done admirable work, notably the Committee on Resuscitation from Electric Shock, who have issued a chart and booklet for use in electric lighting plants which is considered authoritative all over the world; also the Committee on Resuscitation from Mine Gases, a report of whose work has been issued by the Federal government.

The joint committee with the National Educational Association has been engaged in a fruitful study of health problems in education which will give an impetus to sanitation in rural schools, hitherto much neglected.

The activities of the Medicolegal Bureau are still in their incipency, and it must be admitted that on the question of public health legislation the profession is still at variance. Efforts have been made, for nearly half a century, to secure the passage of laws regulating the practice of medicine in the different States, yet we fail to agree on the most essential requirements. The association is, however, now making a more scientific study of medicolegal questions, and has issued two pamphlets dealing with this phase of its work. Nothing, however, could be more unwise or undesirable than hasty or ill considered legislative experiments.

PROPAGANDA DEPARTMENT AND THE COUNCIL ON PHARMACY AND CHEMISTRY.

The propaganda department reports an increasing public interest in the matter of "patent medicine" frauds, and has issued more than thirty educational posters as well as lantern slides for popular lectures on this subject. Boards of health, clubs, and news-

papers are alike active in disseminating information to the public.

The aims of the council and what it has accomplished have made an impression on the medical profession of both England and Germany, and in the latter country an association with similar functions has been formed.

Naturally the work of the council has aroused much antagonism on the part of pharmaceutical manufacturers and those journals which make advertising a specialty, and some drug firms have threatened the council with legal proceedings if it published anything concerning their products. Others have already begun legal action which is being vigorously resisted by the Board of Trustees. But it is gratifying to note that other firms whose preparations are really new and of therapeutic value have voluntarily submitted them to the council for examination and endorsement. Drugs are accepted only after most careful investigation.

The association now has in its laboratory three chemists who give their whole time to the analysis of medicines. The council has attempted to distinguish between medicines good and bad. In addition to *New and Nonofficial Remedies* describing proprietary and new drugs which are deemed worth the consideration of physicians, it has published *Useful Drugs*, which contains the really valuable drugs in our materia medica. This a number of the best schools now use as a textbook. Its labors, too, have materially influenced the teaching of materia medica and therapeutics. It remains, however, for the profession to set its ban on all proprietary medicines, if the only information concerning them comes from those who manufacture and sell them.

A few newspapers submit their medical advertisements to the propaganda department for its opinion before publishing them. Would that the so called independent medical journals might follow their example, and seek an opinion before advertising outrageously fraudulent nostrums in their columns.

The medical profession should realize the inconsistency of its council working to eliminate these products and some of its journals doing their best to perpetuate them. It is absurd for us to fight self medication on the one hand and encourage it on the other. Can we not by concerted action either stop these obnoxious advertisements or refuse to countenance the journals that carry them?

COUNCIL ON MEDICAL EDUCATION.

The Council on Medical Education was established in 1904. Conditions demanded its creation, as other agencies had proved inadequate to meet a situation which had become intolerable. The moral influence of this great association was necessary to quicken and give vital force to what had long been good intentions or ambitious dreams on the part of other and smaller organizations.

Its work has more than justified its existence; for it has, in a decade, accomplished more in the way of regulating and elevating medical education than had been done in a century; and it has been able to do this without the slightest legal power, but solely by reason of the righteousness of its cause, the high

character of its members, and the wide publicity given its recommendations and acts in a journal which goes approximately to 70,000 medical men weekly. No institution could resist, much less defy, the official acts of such a body.

The profession has given the council most cordial support, and it cannot be said that schools have been irresponsible. Indeed, when one considers the chaotic state of medical education in the United States in 1904, and then views the situation as it is today, there is cause for felicitation all around—to the council, to the profession of the country, and to medical institutions—for so happy a consummation could not have been reached without the hearty cooperation of all.

Truth to tell, there are outside influences which have been the most helpful in this beneficent work, and to them all due credit should be given ungrudgingly. The Association of American Medical Colleges, the Federation of State Medical Boards, the American Academy of Medicine, and the Carnegie Foundation have at all times cooperated cheerfully, zealously, and effectively. But, after all, is it not to the greater credit of the council that it has been able, largely through the tactfulness and diplomacy of its chairman, to make use of and coordinate so many forces for good, which, while working separately, as they hitherto had done, had often, though inadvertently, pulled apart instead of together? No one who has attended the annual meetings of the council, Federation of State Medical Boards, and College Association, held on consecutive days, in the same hall, the members of each body having the privilege of debate in all, could fail to be impressed with the admirable team work thus far displayed. To have



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President, 1915, American Medical Association.

united these bodies for effectiveness called for the ability of a wise general, and to weld and hold them together may require the genius of a field marshal.

If mutuality is to be the watchword of all, the structure must, and will be enduring; but if one body insists on conditions and standards which do not commend themselves as both reasonable and attainable throughout the whole country, there is danger of retrogression. We go either forward or backward; the former is usually difficult, requires time, and those who are to be successful must keep ever in mind the admonition, "They stumble that run fast."

When the council was organized in 1904, it published, as an ideal standard to which it would gradually approach, the following:

(a) Preliminary education sufficient to enable the candidate to enter our recognized universities, the passing upon such qualifications by the State authorities.

(b) A five year medical course, the first year of which should be devoted to physics, chemistry, and biology, and such arrangements should be made that this year could be taken either in a school of liberal arts or in the medical school. Of the four years in pure medical work, the first two should be spent in laboratories of anatomy, physiology, pathology, pharmacology, etc., and the last two in close contact with patients in dispensaries and hospitals in the study of medicine, surgery, obstetrics, and the specialties.

(c) A sixth year as an intern in a hospital or dispensary should then complete the medical course.

This goal has been reached, at least on paper; the ranks have been thinned, as more than a third of the schools are now *hors de combat*, and it is expedient to mark time for a while, and give those institutions which have approached the firing line at double quick speed a chance to catch their breath.

There are many reasons why this should be done. In the first place, the standard is now as high as it should be for *all* of the schools of the entire country. An irreducible minimum has been reached, and should be honestly enforced—that is, as soon as it can be. There is, of course, no limit to a maximum that any highly endowed and exceptionally circumstanced institution may adopt for itself.

Second, the present standard of the council (four years in an accredited high school, one year in the basic sciences of chemistry, physics, and biology) is on a parity with that of Canada and Great Britain, and with European countries. What reason have we to establish a cultural standard in medicine higher than that imposed by older countries?

Third, medicine is not a thing apart, but only a link in the educational chain, and should be based on and correlated with the secondary schools, colleges, and universities of the country. Professional education, in medicine at least, has advanced much faster than our general educational system has done. Would it not be logical, henceforth, to direct our efforts toward stimulating progress in secondary education until it shall have caught up?

To make my meaning clear: We demand a four year high school diploma, and, in addition, one year in biology, chemistry, and physics of every matriculate in medicine; and this, notwithstanding the fact that many of the States are poorly equipped with *good* four year public high schools, and that some, though having recently acquired them, are as yet, without graduates. But the very States without

such secondary schools, on which we depend for the necessary cultural knowledge as a prerequisite to the study of medicine, have from one to three medical schools drawing nearly all of their students from their own State. No one knows this better, nor has any one expressed it more clearly, than Doctor Pritchett when he said:

To enforce honestly a four year high school requirement would call for great firmness and self denial on the part of the medical schools [in the South]; but to require on top of this a year of college including the sciences and a modern language is to inaugurate anew a régime of compromises and makeshifts, and to substitute an imitation of education for the genuine thing.

Furthermore, the second requirement, one year in the sciences, is no better, if, indeed, so well complied with. The high schools, colleges, and universities by no means agree as to the character, scope, and extent of such course, and when it should be given. At this moment their differences could not be greater or confusion worse confounded.

Fourth, it is paramount that a man complete his professional training and begin to practise by the time he is twenty-five years old. This must appeal to every one who views the situation from a practical standpoint. To be a nonproducer, a dependent on some one else, at an age when men can be both productive and independent, is abhorrent to the American mind, as we are sensitive on this point and a people of action rather than doctrinaires. Therefore, the council should keep ever before it this essential fact, and other less important requirements should weigh as nothing against it. Furthermore, there is a way to bring this about without in any way curtailing either the secondary or professional training one must have. The fault at this time is unquestionably with the secondary, and not the professional end of it. We have agreed that a course in biology, chemistry, and physics is a prerequisite to the study of medicine, but we do not agree at all as to where, how, and when such a course should be given. At this time it is given in the high schools, in the colleges, and in the universities, and, judging from the very recent report of the committee appointed by the Association of American Medical Colleges to investigate the subject, is taught as differently in one place as another.

In order to meet this condition, medical schools not connected with universities, and some that are, have been compelled to take over this work so that it may be properly correlated with medicine. It should be given, however, by a separate and distinct corps of teachers, and entirely apart from the work of medical students. This system, while educationally unsound, as we must admit, became a necessity because of the unsatisfactory courses given by the various secondary schools, colleges, and universities throughout the country, and, moreover, the seeming unwillingness on the part of their representatives to modify their courses in any way, either for the convenience or benefit of those intending to study medicine subsequently. And yet, these same presidents, deans, and other representatives of colleges and universities seriously advise us to add another year of university work, so that sufficient science shall have been taught the prospective medical student. Why should such a demand be made only on American medical students? No other country makes it;

why then should we? To spend an unnecessary year of one's life in obtaining cultural knowledge that is, to say the most, of questionable and uncertain value to him in his profession, is worse than a crime—it is a blunder. The literary colleges must at least improve their laboratories and tuition, so far as the sciences are concerned, before they can reasonably ask that one relatively fruitless year be passed within their walls; to double the dose would certainly be a serious handicap to the student and might be fatal to our educational system. The committee appointed by the Association of American Medical Colleges has this to say in its report:

We are forced to the conclusion that the literary colleges over the country are not giving the science subjects demanded in our schedule in their first year's curriculums and, apparently, in many instances are not giving biology and physics as regular work for a bachelor's degree.²

If we add to this testimony that of President Lowell of Harvard and others who have read papers at the several conferences referred to, it is perfectly clear that there is no uniformity of practice or thought among the officials of colleges and universities, so far as the scientific course is concerned. Therefore, for the present at least, it must be taught largely by the medical schools, as has long been the custom in England, where the results are most satisfactory; or there must be, as has been suggested by distinguished educators, a rearrangement of the curriculums of high schools, so that they will embrace a course in the sciences which will be acceptable to medical schools. This, I believe, is the very best solution of the problem, as there is no good reason why a first class high school should not give a boy such instruction, whether he intends to study medicine or not. Many of the high schools do this now, and all might be induced to make the necessary change reasonably soon. In a recent conversation with the principal of the Central High School of Philadelphia and the head of the department of science, both expressed the opinion that boys leaving the high school should be fully prepared to begin the study of medicine. Both men are entirely familiar with our modern requirements, as they have kept in close touch with the situation at all times. Professor Keller, for many years head of the science department, has been kind enough to give me, in addition, his opinion in a letter from which I am authorized to quote. He says:

We are satisfied that the instruction now given in our scientific course fully meets the present actual requirements for entrance to the medical schools. The work includes a comprehensive course of instruction in science, including biology, zoology, physiology, physics, and chemistry, as well as in two languages, either Latin and German, or French and German.

We can see no reason why the present requirements in biology, physics, and chemistry should not be covered by the instruction given in any first class high school, such as we have in the larger cities.

The reasons for giving this instruction in high schools are many. First, boys from fifteen to nineteen years of age are at the very time of life when they are more interested in such a course than they would be later on at college or university, when they will, perhaps, have chosen their future vocations and wish to prepare for them specifically. Second,

education is naturally a function of the State, and this is being realized more and more all the time. One has only to consult the reports of the commissioner of education at Washington to be convinced of the marvelous changes for the better wrought in a decade. In 1901 there were 8,210 secondary schools with 649,951 students, whereas in 1911 there were 13,268 such schools with 1,246,827 students.

Mr. Claxton, commissioner of education, suggests that the twelve years of elementary and high school, now grouped into eight years of primary and grammar school and four years of high school, be rearranged, making the course six years in each. Taking the seventh and eighth years as part of the high school makes it easy to begin departmental teaching in these grades, and to adopt the methods of teaching and discipline to the changing demands of the children. It also makes it possible to begin vocational education two years earlier than is now the case, which all must think desirable. Virtually nothing is lost in the primary school by such an arrangement, as teachers are generally agreed that the time spent in the seventh and eighth grades is nearly always, under the present plan, a period of marking time.

High schools change with surprising swiftness, even in the older States. What was last year a registered three year high school in New York often becomes this year a registered four year high school. During the past decade a steady stiffening of the requirements for admission has occurred. Only the better high schools have been able to keep pace with these changes and to meet fully these requirements. The whole system of secondary education of a State may undergo in half a decade a thorough reorganization and uplift; the State of Virginia offers an example.³

I quote again from Commissioner Claxton⁴:

Not only must the courses of instruction in all public schools be varied and differentiated to meet the varying needs of all the children of all the people, they must also be so adjusted as to give the information and training necessary for intelligent and successful employment in all standard occupations. Whatever is needed to be done for the welfare of society in city or State should be taught in the public schools, unless it can be taught elsewhere better and more economically.

Whatever may be the solution of the problem of vocational education, it is quite clear that two things should be held firmly in mind: 1, That all education is one thing and not many, and that vocational schools are an integral part of our common school system; 2, that whatever may be the trade by which one makes a living, humanity and citizenship, with all their requirements, are common to all, and must be considered in the education of all individuals and classes.

In the State of Pennsylvania there were but 193 four year high schools in 1904, whereas there are 353 reported in 1914 (of these, forty-three are in cities and 310 in counties). There are still more schools giving three and two year courses, it is true (383 of the former and 134 of the latter); but if the rapid evolution of the past decade continues, there will very soon be more high schools giving a four year course than schools of lower grade.

Now, while high schools are undergoing such evolutionary changes, is the propitious time to make an appeal to them to arrange their curriculums so as to include a liberal science course. This appeal should have additional weight because they are public insti-

²The members of the committee making this report are all connected with universities.

³Babcock, Kendric Charles, *Bull.* 29, U. S. Bureau of Education, 1913.

⁴Report of Commissioner of Education.

tutions maintained for the advantage of all; whereas colleges and universities, being largely private corporations, are managed to suit themselves and their officers, and would naturally be less responsive to outside requests or influences. The advantages would be palpable and direct, mutually beneficial to State, municipality, secondary, higher, and professional education. The State and municipality owe, and can perform no higher duty than to furnish youths with the very best educational advantages, as all that they give in this way is thrice repaid in a quickened, higher, and better citizenship. Perhaps the very best and most wholesome law which a State can enact is that making education compulsory, thereby, to a certain extent, taking the control of a child from its parents. If this right is both assumed and exercised, it should be carried out conscientiously, wisely, and thoroughly, and the States, domestic and foreign, that have measured up to this obligation have secured results which have placed them far and away ahead of those which have not. In no other way can we explain the satisfactory state of medical, as well as other branches of professional education in Germany and France, for instance. There professional education is considered, as it should be a part of a general educational system, and hence is built on a solid foundation. The thoroughness of the German secondary school system is most admirable, and should be imitated by other countries. The French, however, have better solved the question of premedical education, which is, at the present time, the most important question awaiting solution in America. After leaving the lycée with a baccalaureate, one must, before beginning the study of medicine, take a scientific course for one year, which includes physics, chemistry, and natural history. It is designated as the P. C. N. course. It is given under academic auspices, and not by the medical schools—a practice educationally sound beyond question—but the course is objected to by the teachers of medicine as being too general in its scope and not sufficiently correlated with medicine. It is, nevertheless, thorough, embracing lectures and demonstrations in the morning, and active, practical work in well equipped laboratories in the afternoon.

In England the same distrust of college and secondary school training in the fundamental sciences, on which medicine rests, has always been shown, and to such an extent that the Conjoint Board of London, representing the Royal Colleges of Medicine and Surgery, refuses to recognize and give full credit for any such course taken outside of a medical school. Subject, but not time credit is given. A student from such institutions must spend at least six months in the first year of a medical school reviewing what he has already had, and going further in the basic sciences before he can enter the second year of a five year course in medicine.⁵ This action is made necessary by the rudimentary state of public, or what they call board school, education in England, and the unevenness of scientific instruction elsewhere than in medical colleges. It is thought to be the best possible solution of the problem for that country, at this time, by an able, experienced, and impartial teacher who is thoroughly

acquainted with educational matters throughout the world, and who is, moreover, an enthusiastic advocate of the French system wherever it is practicable.⁶ So, even if it be maintained that many of the high schools will not, or cannot give an entirely satisfactory course in the sciences, their students beginning medicine can be given subject but not time credit, as is done in England, by our medical schools. I am of opinion that the English plan, which requires that at least six months of the science course be repeated, has much to recommend it and gives better practical results than the French system. When a boy takes his scientific course in a medical school, he is already pursuing what is to be his life work, he associates with medical students, occasionally attends, and is perhaps inspired by a clinic, and his work of the first year is properly correlated with that of the second; moreover, and this is of the utmost importance, he is away from the many distractions inseparable from the first year of college life, when it is not expected that he take matters too seriously, but drift with the current.

In the medical school it is intensive study; in the college extensive study. I believe intensive work is better for the professional man, whereas a more diversified and widely distributed course is better for the man of letters.

The suggestion of Doctor Pritchett and Mr. Flexner that the secondary schools of Germany should include a satisfactory course in the sciences is certainly, I think, as applicable to our public schools.⁷ Commissioner Claxton has shown it to be not only desirable, but also feasible in the United States, where changes are being made so rapidly in our secondary schools. Therefore, the present is the opportune time to bridge the gap between the secondary and vocational school by bettering the former and permitting a youth to begin medicine, law, engineering, or other vocation before he is twenty years old. It will then be quite possible for him to have graduated from a medical school and to have had a year's service in a hospital by the time he is twenty-five. Then, and then only, in my opinion, shall we get the type of men for whom there is a demand in the profession. To require, as medical schools do today, that part of one's preliminary education shall be in a high school, where there is confessedly no average standard for all of the States, and another part in a college or university where no greater uniformity is to be found, is, to say the least, an anachronism. We are a young nation with no hampering restrictions and traditions to fetter and hold us back when the very life of our educational system is at stake. Either the high school system should be changed, as urged by Commissioner Claxton, so that the four year course will embrace all of the English, mathematics, sciences, and languages necessary for professional enrollment, or paper credentials, which are now of relatively little value, should be given up altogether, and men accepted as medical students only after passing the necessary entrance examination.

Practically all medical teachers agree that the greatest defect with students is, and always has

⁵Frederick G. Hallett, secretary, Conjoint Board, London.

⁶Abraham Flexner, *Carnegie Report*.

⁷Carnegie Foundation, *Medical Education in Europe*, 1912.

been, the lack of an adequate knowledge of English. Mathematics, the sciences, and languages are of great importance, unquestionably; but to understand, to speak, and to write English correctly is of far greater importance, and should be insisted on as paramount. It was undoubtedly wise for the council to omit German and French as a requirement after 1914. In lieu of them, it should strenuously insist on a more thorough preparation of students in English, and suggest that it take the place of German, which was formerly advocated by the council, is still being taught by many schools in the premedical year, and is insisted on by the Association of Colleges. A student can learn but little of any language, of which he has known nothing previously, in one year; yet the same time given to the study of English, and the necessary emphasis put on it at the very beginning of his professional career, would be most fruitful. Appearances, address, and correct use of English must always be among the physician's best professional assets, and to be indifferent concerning any of them certainly does not make for success.

In 1903, at its annual meeting in New Orleans, the Association of American Medical Colleges enacted into law a recommendation which had been made the previous year by President Vaughan to the effect that all matriculates in medicine should have a four year high school diploma. A committee had been appointed at the meeting in Saratoga, and reported formally on the recommendation at New Orleans.

I had then, as now, the distinguished honor of succeeding Doctor Vaughan as president, and used what personal and official influence I could summon to put into effect his recommendation, notwithstanding the fact that it was strenuously opposed by many of my best friends and the two faculties of which I was then a member. As there were only about one third of the number of high schools in 1903 that we have now, and most of them gave one, two, and three year courses, and but few a four year course, it was thought best to make the new requirement effective after July 1, 1905, and to give the student the option of an examination in lieu of a satisfactory diploma. This postponement also gave schools time to discharge all outstanding obligations to their students who had matriculated under the former standard. Some of the present difficulties were foreseen, but there was not, and should never be the slightest sectional discrimination in an organization that is national in scope. This may be proper on the part of States, but the Association of American Medical Colleges and the American Medical Association should legislate, and have always legislated for the entire country.

There is but little doubt that the action taken by the college association in 1903, and by the American Medical Association since the creation of its Council on Medical Education, in 1904, has done much to stimulate the high school system all over the country, improving those schools which did exist, and causing States without adequate high schools to establish them. The medical profession has always exercised a wide influence on our common school system, as thousands of its members serve on school boards throughout the country, have

intimate contact with educators, and can exert a wholesome influence on them. Now is the accepted time to do it, for there are evidences of unrest everywhere. I know that it exists in Philadelphia, and that the adoption of the suggestion of Commissioner Claxton for junior and senior high schools is now being actively agitated in that city.

It is clearly the duty of the Council on Education to have and even to publish a list of acceptable and unacceptable medical schools; but I agree with the position taken by Doctor Pritchett, in his paper at the February conference in Chicago, that the simpler the classification the better, as fewer mistakes will be made and, therefore, heartier support accorded by all. Nice discriminations between wholly acceptable schools are unnecessary, serve no good purpose, will naturally be resented, and may lessen the usefulness of the council. There is always danger of overdoing a good thing. For example, all will agree that the railroads of the country formerly needed regulation by State and Federal government, so flagrant had been their offenses and shortcomings. But nearly everybody, certainly a majority, now think that zealotness in the best of causes went too far, and resulted in injury to the railroads, the country, and the people. Hence the present reaction and undoing of much that was unwisely done.

Therefore, the council abolished "A plus" from its classification. It is proper and feasible to distinguish between schools which are acceptable and those which are not. The former have the necessary all time teachers, equipment, and hospital facilities, the latter are wanting in all of them to a greater or less extent; hence there can be no honest and intelligent difference of opinion concerning them. But, when the council undertakes to discriminate between high grade schools, mistakes certainly will be made, as Doctor Pritchett so forcibly pointed out; for men would be more than human if they did not use all honorable means to secure the highest rating for their schools, and resent that which seems a work of supererogation, needlessly discriminatory, and inviting criticism and opposition. But while I am very clear as to both the wisdom and expediency of the present classification, I am also of opinion that it is the duty of the council to give full credit to schools—and to make it equally prominent in its reports—which maintain a different standard from its own, be it higher or lower; and, further, to express an opinion, not only as to the ability of a school to fulfil its pledges, but also if it is consistently doing so. Standards are worse than useless if they are not both honestly and fearlessly enforced, whether the offender is strong or weak. Let others, as the prospective medical students who are most concerned, know exactly what the country offers in an educational way, and precisely where they can get it—not where it is promised. Every one knows that the catalogues and other announcements emanating from schools cannot be absolutely relied on, as they are often the specious plea of the advocate and partisan and, if accepted at their face value by prospective students of medicine, will prove in the end both disappointing and illusory. One will hardly go to a doting parent for an unbiased opinion as to the ability, beauty, and virtues

of a child, nor will one seek opinion concerning a pastor from one of his devoted parishioners. It is about as wise to expect all deans who write medical and other prospectuses to spend their time in criticising their own institutions.

At the meeting of the council, December 28, 1914, a suggestion was made, to the effect that, in addition to and following the official classification, the council should enumerate on a separate page all schools which require a diploma before one can begin therein the study of medicine; on another page schools which require two or more years of college work before matriculation in medicine; on still another page schools which require one year of collegiate work, and, on a final page, schools which require, in addition to a five year medical course, a sixth year as intern in an acceptable hospital. The representative of the Federation of State Medical Boards, who was present, said that this arrangement would greatly facilitate their work. I again endorse the proposition, and hope to see it become operative.

A committee, of which President Vaughan is chairman, was appointed by the council to report a plan by which clinical teaching can be made more effective and practical. On this committee are ten of the ablest and most experienced teachers in the country, and their final report, whatever it may be, must have great influence toward controlling clinical teaching in America. The preliminary report of this committee, presented by the chairman, was read and fully debated at the meeting of the council in February. It was a most careful, conscientious, and able review of clinical teaching, showing how hospitals connected with medical colleges could be so managed as to insure to students practical, and, at the same time, most necessary advantages. Questions of general hospital management, endowment, and equipment were considered, as on them, in large measure, efficient clinical instruction must depend.

THE NATIONAL BOARD.

To meet a situation which, under our peculiar form of government, has resulted in hardship, and must, if continued, cause countless embarrassments, a national Board of Medical Examiners has been organized, and will hold its first examination in Washington in October. The character and scope of this examination will be such that no State ought to, and we believe none will deny recognition in the fullest sense to those who pass it.

At the same time, I wish to make it absolutely clear that such a board will not, cannot, and should not interfere with the several State boards. Such an examination is for the exceptional, not the average man. It is for the man who, while young, willing, and able to pass it, does so with the hope that it may prove a good investment for him in case of business opportunity, ill health in his family, or other impelling reasons which may cause him to change his location. All of us have in mind sad examples of able, even distinguished general practitioners and specialists, who, compelled to remove from one State to another, were estopped from practising their profession. Laws have been made, and rightfully so, to restrain the ignorant and de-

signing from imposing on those whom the State would protect. That the State should insure the people protection in so vital a matter by placing its stamp on medical practitioners cannot be questioned, and there is but one way in which this may be accomplished with equity and justice to all; that is, by requiring an examination at the hands of a State board of examiners. That conditions in all of the States are much better than those which existed prior to the formation of such boards cannot be questioned, for medical schools were given their first shock and made to improve by State boards, years before the Council on Medical Education was created; but the great number of States in our Union, some still maintaining multiple boards, makes a uniform standard simply impossible. Indeed, the boards of the several States not only differ in standard one from another, but the two or three boards in one State may differ as widely among themselves. Yet these differences are not only natural but also to a certain extent commendable, although especially trying and vexatious to practitioners who must move from State to State.

For many reasons a national board with power to confer a diploma carrying with it the unquestioned right to practise in any State—indeed to follow the flag—has always been desirable, though, as yet, unattainable under existing laws. But there is a way by which such recognition may be accorded to a carefully selected and representative board, entitled of right to the confidence of the entire country, without changing the law in some States, and with but slight and immaterial changes in others. Many States have already, quite properly, given rather wide discretionary powers to their boards of examiners and invested them with authority either to recognize, or to withhold recognition from extra-state agencies, domestic or foreign. This rests entirely with these boards, and they are governed solely by the standard of the body whose credentials are proffered. If high, they may be accepted without examination of the applicant; if low, they are rejected, and if doubtful, the candidate must be examined. No other course is reasonable. In some States the law is mandatory, and compels the applicant for licensure to be examined, in prescribed fashion, whatever his qualifications or credentials.

It should be a simple matter to induce all of the States at once to recognize a national board whose only aim is to improve the existing situation, and remedy a defect in our law and form of government, provided such board give an examination equal in every way to that required by the most exacting State in the Union. If this is done, then it becomes the patriotic duty of the several States to recognize its licentiates, just as the Provinces of Canada now recognize the examination of its national board of examiners. There identically the same relations exist between States and general government as obtain with us, and there States' rights and jealousy of the general government prevented for more than fifty years the creation of a national board of medical examiners. For several years past Canada has had such a national board; everybody is pleased with it, and all wonder how they got along without it. The president of the

board explained its workings to us fully at the annual Conference on Medical Education in 1914. Shall we do less than Canada? Shall our States be less generous to their practitioners than her Provinces? I do not for a moment think so.

The past fifteen years have witnessed a remarkable change in sentiment on the part of the several States toward the Federal government. Many things formerly viewed, and resented, as encroachments on the powers of the States are now not only accepted, but also eagerly sought by them or their representatives in Congress, and consequently all have been bettered. In no direction has a proposed change in our practice offered more to, and taken less from the sovereignty of States than a properly constituted national board of medical examiners will do. It proffers much; it takes nothing.

If questions of health, quarantine, pure food, the sale of narcotics, laws controlling the destruction of migratory birds, the granting of national charters, etc., have been yielded by States to the Federal government—all of which has recently been done—why should there be the slightest hesitation on the part of any State to recognize the act of a national board of examiners, when by so doing it does not in the least surrender either authority or dignity? Certainly such a body, representative of the entire country geographically as well as through its public services and its leading national medical organizations, would be entitled to the same consideration—it asks no more—that is accorded a State board.

The government, without any authority in the premises, has, through the Secretaries of the Treasury, War, and Navy, assented to the service on such board of the surgeon general and an associate from each of these departments; and, in addition, has promised that the government laboratories, hospitals, and schools for instruction may be used by the national board in conducting its examinations. The combined resources of these three government services are more than ample to meet every demand; moreover, they will insure an examination of such character as we believe to be necessary, yet is impracticable where large numbers of applicants are examined in one building, within a prescribed time, and by only a few examiners.

With the resources available to the board, a number of men can be examined in the several laboratories, some may be given a practical examination in the hospitals, while others undergo written, and still others take oral examinations, or operate on cadavers, all at the same time, but under different examiners.

An executive committee of five members is perfecting details for the first examination, which will be held from October 4th to 11th, and longer if necessary, and, presumably, will be similar to that of the Conjoint Board of the Royal Colleges of Medicine and Surgery in England. An advantage, and a very great one it is, to those passing this examination, is the fact that they may subsequently become members of the Medical Reserve Corps of either the army or navy, if they so desire, provided that they fulfil the requirements as to age, and pass a satisfactory examination. The government gains also by the enlargement of these corps, and is in-

sured sufficient medical officers in time of war, riot, pestilence, or other exigency. Therefore, as I have intimated, it is the patriotic duty of all to support a board which can contribute so much to the national government in time of stress. Those who recall the Spanish War will vividly remember the difficulties which beset both our army and navy in obtaining sufficient medical officers. Many of those accepted were far from being up to the standard of the services; this I know, and, having been asked a number of times to recommend young men for the army, remember how difficult it was to get them. I frequently discussed the matter with the surgeon general's office, as well as with Col. A. C. Girard, who was chief medical officer at Camp Meade, where I visited him and sent a number of contract surgeons from time to time.

The national board has adopted the standard of the Council on Medical Education of the American Medical Association, and, in addition, will require at least one year of service in an acceptable hospital. These requirements will be rigidly enforced; that is, an applicant must give satisfactory evidence of having had the following:

(a) A diploma from a high school of good standing giving a four year course.

(b) A satisfactory course in science, embracing physics, chemistry, and biology, of not less than one year.

(c) Four years in a medical school of A grade.

(d) At least one year as intern in an acceptable hospital.

The hospital year is required for two reasons. First, no one should practise medicine independently, however well taught theoretically, until he has had practical training under experienced men, and this can be secured only in a hospital. Some colleges require it before graduation, and some States demand it before licensure.

Second, I think it most desirable that those who pass the examination should have the option of becoming members of the Reserve Corps of the Army or Navy; but to insure this, all requirements must be met. A year's internship in a hospital is required by both the army and navy.

While the amount of the fee to be paid by each applicant taking the examination has not, as yet, been determined by the board, there is no doubt that it will be much in excess of that charged by State boards, yet less than the amount charged by the Conjoint Board of England (£42). In America distances are often great, which may, with some, add materially to the expense of taking the examination in Washington; and, over and above the fee paid the national board, every one must also pay the usual fee for registration in the State of his adoption. Recognition of one's qualifications to practise medicine and surgery, by a given State board, by no means absolves one from paying the customary fee, just as though one were examined. To be excused from examination is all that can be reasonably expected, and this must be considered a courtesy, not a right.

As to the personnel of the board, I can say that there will probably be fifteen members, several not having as yet been appointed. All sections of the

country are to be represented. As at present constituted, the board consists of: Admiral William C. Braisted, surgeon general, U. S. Navy, chairman; Major General William C. Gorgas, surgeon general, U. S. Army; General Rupert Blue, surgeon general, U. S. Public Health Service; Colonel Louis A. LaGarde, U. S. Army, treasurer; Assistant Surgeon General W. C. Rucker, U. S. Public Health Service; Commander E. R. Stitt, U. S. Navy; Dr. Herbert Harlan, representing the Confederation of State Boards of Examiners; Dr. Isidore Dyer, representing the Association of American Medical Colleges; Dr. E. Wyllys Andrews, representing the American College of Surgeons; Dr. Louis B. Wilson, representing the Mayo Foundation; Dr. Victor C. Vaughan, representing the American Medical Association; Dr. William L. Rodman, secretary, representing the American Medical Association.

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Original Communications.

THE PROGNOSTIC SIGNIFICANCE OF TUBERCULOUS CAVITIES IN THE LUNGS.*

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The diagnostic and prognostic significance of pulmonary excavations in tuberculosis is but rarely discussed at present when everybody, the profession and the laity, are mainly, if not exclusively concerned in discovering incipient tuberculosis which, by general consent, has been considered the curable stage of the disease. The "cavitary phthisis" of writers of former generations has been considered synonymous with the advanced and incurable form of the disease. This is, however, one of the traditional errors which have remained with us since the era when phthisis was altogether considered incurable, but it has no foundation in modern pathology and clinical medicine.

Indeed, we meet in our daily practice patients affected with pulmonary tuberculosis, showing signs of extensive involvement and destruction of large areas of pulmonary parenchyma, which have a better expectation of life than a considerable proportion of cases in the incipient stage in which the lesion is limited and circumscribed or even hardly detectable with all our modern refinements in diagnosis.

Clinical experience has taught the lesson that the dangers of phthisis depend mainly on the acuteness of the process. Hardly anyone has recovered from acute miliary tuberculosis, and very few indeed have survived acute pneumonic phthisis, while from chronic pulmonary tuberculosis a large proportion get well. Pulmonary cavitation is undoubtedly an indication of chronicity of the pathological process, a sign of resistance of the organism against the invading enemy. In acute miliary tuberculosis excavations are hardly ever found in the lungs, and

in acute pneumonic phthisis they are exceedingly rare; the patient succumbs before the caseated tubercles reach the stage of liquefaction and render themselves liable to expulsion by cough.

Experimental tuberculosis in animals is nearly always an acute general infection. The lungs are found studded with tubercles just as most of the other visceral organs, the liver, the spleen, the kidneys, etc. No cavities are found in the affected organs. They are also rare in spontaneous tuberculosis in animals, or in experimental infection with small doses of tubercle bacilli producing lesions which develop slowly. Caseous pneumonia may be found in the lungs and only exceptionally excavations. It has also been observed that when the infecting dose is infinitesimally small, only hypersensitiveness to tuberculin is accomplished. It appears that this hypersensitiveness is an excellent indication that the organism is endowed with a certain degree of immunity against renewed infection with small doses of the same virus. But when the animal is reinfected with a large dose of tubercle bacilli, the disease may localize itself mainly in the lungs and produce excavations. Some authors have for this reason suggested that cavitary phthisis is due to reinfection of an individual who has been infected, and to a certain extent immunized during childhood.

The pathological anatomy of spontaneous tuberculosis in animals differs in a marked degree from that in human beings; one of the differences is that cavities are exceedingly rare. W. Reid Blair, making autopsies on monkeys which succumbed to tuberculosis in the New York Zoological Park, found that the general characters of the lesions produced in simian tuberculosis simulate those of human infection, and the same is true of the morphological traits of the bacilli. But there is one significant difference; the lesions are very extensively distributed; practically every organ in the thorax and abdomen is invaded; the lungs are usually affected with the miliary or nodular form of phthisis, and cavitation, so common in human phthisis, is exceedingly rare in monkeys. It is also important to mention that he never observed fibroid changes in the lungs of these animals, as is usually the case in human tuberculosis, nor did he find healed tuberculous lesions. In other words, tuberculosis among the primates is preeminently a progressive and not a self limiting disease; the chronic form of the disease is not seen among them, and no cavity formation occurs.

These facts give us a clue as to the significance of excavations in pulmonary tuberculosis. In chronic human phthisis there are always two processes to be observed pathologically; a destructive process which is characterized by caseation and softening of the affected lung tissue, and a reparative process, characterized by sclerosis or the proliferation of the fixed connective tissue cells. The clinical course of the disease is mainly influenced by the relative intensity of each of these two processes. When the process of caseation predominates and progresses with rapidity, the tuberculous focus increases in extent and in clinical significance; but when the proliferative process predominates, the inflammation proceeds slowly and may even terminate in a cure through sclerosis. In chronic phthisis both processes usually go hand in hand—the reparative,

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manifesting itself in the proliferation of connective tissue, is seen at the periphery of the lesion, while the centre caseates, softens, and is expelled by expectoration, leaving a cavity surrounded by a connective tissue capsule.

It is this sclerosis which is absent or very slight in acute tuberculosis, in which the nodular or miliary tubercles occur in the various viscera, and, as in tuberculosis in the lower animals, cavity formation is rare; the patient succumbs to the toxemia before the tubercles conglomerate in a circumscribed area, before they soften, rendering themselves liable to expulsion to leave a vacant space, a cavity. In subacute pulmonary tuberculosis, in which the patient is carried off within a few months, the reparative process is seen in some areas, but it is not as active nor as extensive as in chronic phthisis in which the focus is usually surrounded by a wall, a fibrous shell limiting the extent of the lesion. The result is that the necrotic process keeps on extending, producing excavations which may attain extensive dimensions, especially when several vomicae coalesce. But these subacute cases of phthisis are very rare in the experience of physicians in civilized countries, excepting in infants, as will be shown later on.

It is thus evident that the difference between active phthisis with cavity formation and without such occurrence is analogous to that of general septicemia and abscess. In the latter case the disease is localized and circumscribed and, when drained, the danger is negligible. A cavity has, in fact, been defined as a tuberculous abscess which is drained through a fistulous opening into a bronchus.

It may be stated that the dangers of tuberculous cavities vary inversely with the time it takes for their formation. The sooner they are produced, the worse the prognosis; the slower they develop, the better the ultimate outlook. In acute and subacute cases the process is active and progressive—caseation, softening, and liquefaction take place in rapid succession; the walls of the excavations consist of inflamed and necrosed tissue incapable of prolonged vitality. By coalescence several adjoining cavities may merge and produce one large excavation with irregular, ulcerating, ragged walls to which lumps of necrosed tissue are attached. When derived from an extensive pneumonic process, as is often the case in acute and subacute phthisis, the excavation may be large from the beginning, but usually several smaller cavities coalesce by progressive encroachment to form one large, pouchy cavity.

These acute cavities have no lining membrane; quite rapidly the process of decay is progressing and successive areas of lung tissue are exposed to the action of the bacilli and their products. No connective tissue wall is formed between the necrotic and the unaffected tissue; in very acute cases a line of demarcation is never drawn just like the slough in phagedena. These cases are undoubtedly hopeless. The symptomatology is that of acute phthisis with profound fever and general toxemia, rapid emaciation; occasionally copious pulmonary hemorrhages are seen at the onset. The patient succumbs within two or three months.

It is fortunate that this form of phthisis, which is analogous to that observed in the lower animals, is only rarely seen among the adult population of

modern large industrial cities. It is mostly seen among populations into which tuberculosis has only recently been introduced. It appears to be due to a primary massive infection, while chronic phthisis is now considered a massive superinfection of an individual who has been mildly infected during childhood, either by autogenic metastasis from an old quiescent lesion, or altogether exogenic with a new strain of bacilli.

Pulmonary cavities occasionally found in infants seem to follow the same rule. The fact is that in infants most cases of tuberculosis are acute and no cavities are formed at all, as is the case with all tuberculosis striking virgin soil. But when formed, the cavities are surrounded by lung tissue which is normal, excepting for some miliary tubercles; they are not traversed or surrounded by strands of connective tissue, as is the case with chronic phthisis in adults. It is for this reason that pulmonary tuberculosis in infants usually pursues an acute and fatal course; either no cavities at all are formed, or when formed they are not limited by a connective tissue capsule.

Most of the cavities in the lungs we meet in our daily practice, probably nine out of ten, are of an entirely different variety. They are usually chronic, lasting for many years. Even the small proportion which began as acute or subacute, have sooner or later subsided and pursued a more chronic course. Around the softened and liquefied focus a lining membrane develops, fibroid tissue is thrown out for the protection of the surrounding lung; a wall is thus formed which envelops the original infiltrated area which is soon removed by expectoration. In this manner phthisis which commences acutely, at times shows astonishing improvement or even arrest of the urgent symptoms soon after an excavation has been formed, probably because of the sequestration and removal of the necrotic tissue. Laennec saw these cases nearly a century ago, and most other writers speak of them. It is in these cases that the vacant space left by the removal of a considerable portion of lung tissue is occasionally filled in with some of the thoracic or abdominal viscera. Thus, in cases of extensive excavation of the right lung, the heart may be drawn over to the right hemithorax, even producing complete dextrocardia; or the diaphragm, and with it the liver, may be drawn upward as far as the fourth rib in extreme cases. In left sided lesions the diaphragm, stomach, and spleen may be drawn upward, the heart upward and to the left, etc.

However, with all this rapid loss of extensive areas of pulmonary parenchyma and visceral displacement, the patient may feel comparatively well. I have seen many who, after the acute stage has passed, get a new lease of life, and some may even be able to continue their vocation, despite the more or less severe dyspnea which is one of the most urgent symptoms in these cases.

In the average case of cavitary phthisis the excavations are slow in formation. Because they are surrounded by dense fibrous capsule which limits their progress, they are often almost harmless for long periods of years; communicating with a bronchus which permits the expulsion of the morbid secretions which forms on their ulceration walls,

they often pursue an apyretic course. Some even have smooth and glittering walls of fibrous tissue without any lymph spaces, and the toxic product within them cannot be absorbed. In rare cases the inner bronchial layer is more or less intact, showing that they are of true bronchiectatic origin.

We meet with this class of patients who, despite more or less extensive excavations, live for many years without pronounced inconvenience; in fact, some consider themselves fairly healthy, attend to business or even to manual labor. Their main troubles consist in a proclivity to "catch cold," and only on such occasions do they call on the physician for relief. I have one patient with a large excavation in his left upper lobe, who for twenty years has been active in raising and supporting a large family, working as a tailor. Some with this sort of tuberculous cavities are altogether ignorant of the real nature of their disease, believing that they suffer from bronchitis, asthma, etc. Inasmuch as they expectorate profusely sputum containing numerous tubercle bacilli, they are very dangerous members of a community; they are actual tubercle bacillus "carriers."

In old persons with rigid chests, quiescent cavities are not uncommon. Cyphosis or cyphoscoliosis is a frequent accompaniment of senile phthisis. They usually give a history of chronic cough and expectoration which has lasted for many years, perhaps since childhood. But in many the real tuberculous nature of the pulmonary lesion has never been suspected. Some even resent the suggestion that they have tuberculosis, arguing that consumption cannot affect old people, and that they have been coughing since childhood, and if it had been tuberculosis they would have died long ago.

Among the patients discharged from sanatoriums as "apparently cured," "improved," or "arrested," and told that they must take extreme care of themselves in order to avoid a relapse of the disease, there are many with more or less extensive excavations. Coming home and beginning to work, many are surprised to find that they are getting along very well and even gaining in weight and strength. But for an occasional attack of "bronchitis," or hemoptysis, or a copious pulmonary hemorrhage which is soon controlled, they would consider themselves healthy and forget their past attack of tuberculosis.

Physical examination of the chest of these patients reveals distinct signs of pulmonary excavation, while the sputum contains tubercle bacilli. It has been stated that the bacilli in many of these cases, while retaining their staining reactions, often lose their pathogenicity for guineapigs. It is noteworthy that many of these patients have no fever for years and a subnormal temperature is not uncommon. I have many in my private practice who have been in this condition for over twenty years and in my hospital experience they are not at all uncommon. They all prove that extensive pulmonary excavation is consistent with a long and useful life.

Dyspnea is the most annoying subjective symptom of these patients and is the cause of their inability to work. It is usually not due to the loss of extensive areas of pulmonary parenchyma. We know this can be borne with little or no incon-

venience, as is evident from cases of artificial pneumothorax in which an entire lung is out of commission yet the dyspnea is not at all pronounced. The difficulties in breathing are here due to the extensive sclerosis of the lungs which interferes with the pulmonary circulation and it may be enhanced by the cardiac displacement, which is not uncommon.

The great danger to which these patients are exposed is pulmonary hemorrhage. They may be getting along very well indeed, but one day, with or without any exciting cause, with or without any premonitory warning, they are seized with a hemorrhage which is copious to an extent to threaten life. In a few it actually becomes uncontrollable and ends fatally. But fortunately this accident is comparatively rare.

Not all excavations are, however, as benign as just stated. In most cases of chronic phthisis with cavitation, the patients are annoyed by a paroxysmal cough, though many bring up large quantities of sputum without great effort, like those suffering from simple bronchiectasis. But even this does not disable them completely. I have known patients who, with a paroxysmal and productive cough of this character, worked at arduous labor for years. But now and then the fistulous tract leading from the cavity to the bronchus is plugged by some secretion or by swelling. The amount of expectoration is diminished or completely suppressed. Fever, night-sweats, anorexia, weakness, etc., make their appearance, and the patient is laid up for several days or weeks until the plug in the bronchus is dislodged, expectoration freely reestablished, and within a few days he feels again comparatively well. This sort of cavity is responsible for the undulating course of phthisis with its ups and downs, its months of relative comfort and weeks of misery. Finally one of these attacks is sufficiently prolonged or severe to exhaust the vitality of the patient and, with complicating laryngeal or intestinal tuberculosis, or amyloid disease of the viscera, he succumbs.

But the end may not be so soon. I have known patients who, with this sort of cavity, lived for many years, leading useful lives, who were laid up only once or twice during the year for a week or two, recovering not much the worse for their experience. The hospitals for advanced consumptives are filled with this class of patients, and lay visitors are often surprised to see healthy looking persons in institutions maintained for the sick and the helpless. The remedies which have been vaunted as curative agents for tuberculosis in all stages, and for which long series of cases are cited as having improved while taking them, depend for their alleged efficacy on this undulating course of cavitary phthisis.

There remain to be mentioned basal cavities. The best that can be said about them is that they are exceedingly rare in pulmonary tuberculosis, except in the terminal stages, when one cavity more or less makes very little difference. Some authors state that only one out of 200, or even 300, tuberculous cavities is situated in the lower lobes of the lungs. The prognosis is more unfavorable than in excavations of the upper lobes, undoubtedly because they do not empty themselves with ease for obvious reasons.

Considering a pulmonary cavity as an abscess, we understand that when it does not drain, the result must be disastrous; the abundant secretions fill it up and cough is not very effective in removing them. In the terminal stages of phthisis with lesions in the upper lobe, excavations sometimes form at the base, as we find them often at necropsy, and kill the patient who may have been getting along very well before their occurrence. In fact, if in the course of chronic phthisis signs of excavation appear in the lower half of the chest, the prognosis is gloomy.

These basal cavities are very difficult of diagnosis. In some cases we find signs of excavation at the base which are really "phantom caverns," as William Ewart called them. The amphoric sounds of an excavation in the upper lobe are transmitted to the base by some transient or permanent consolidation. Echo may also be responsible for cavernous sounds at the base when the original excavation is situated in the opposite side of the chest and not in immediate contact with the spinal column.

Basal cavities are also to be distinguished from bronchiectasis and from syphilis of the lung. In bronchiectasis the sputum is mucopurulent, separates into three layers on standing, is occasionally putrid, brought up periodically in large quantities, and contains no tubercle bacilli. But all these may be encountered with tuberculous cavities. The writer has been guided by the state of nutrition of the patient. If in spite of the abundant and extensive bronchitis manifesting itself by profuse expectoration and numerous, large, consonating rales and gurgles, the patient holds his own, the chances in favor of bronchiectasis are immense. Tuberculosis showing such activity is accompanied by pronounced emaciation, fever, night sweats, and tubercle bacilli are not lacking. Syphilis of the lung with basal cavities is distinguished from tuberculosis by the presence of other stigmata of specific disease, the Wassermann reaction, and continued absence of tubercle bacilli from the sputum. Finally, the diagnosis is at times only cleared up by the therapeutic test—antisyphilitic treatment acts promptly in most cases.

Many cavities not only remain quiescent and inactive as stated above, but even heal. Some pathologists maintain that it is possible for small or even moderately large cavities in the lung to expel their contents, and the walls should granulate, and finally shrink. But William Ewart has shown that, whereas in other organs the obliteration of abnormal spaces is effected by a free granulation arising from the bottom of the cavity, surface granulations are practically absent from pulmonary excavations. Still, even he holds that if freely drained, they may granulate and the walls should finally adhere. But this is only possible with small vomicae.

Most of the healed cavities found at necropsies contain a focus of caseous matter, which may or may not have calcified. They are surrounded by a more or less dense fibrous capsule, which separates them from the surrounding pulmonary parenchyma. Because the contents contain virulent tubercle bacilli and there may be some connection between them and the surrounding lung through lymph

spaces, the bacteria may proliferate under favorable conditions and, by autogenic metastasis, induce pathological changes in other parts of the lung. It is also to be remembered that a quiescent cavity communicating with the external air may at any time suffer from mixed infection by nontuberculous bacteria brought in by the inspired air.

On the whole, extensive excavations may become quiescent and the patient should lead a useful and efficient life indefinitely, but a *restitutio ad integrum* in the anatomical sense cannot be expected. But we must bear in mind that it is not always the anatomical changes in the lung which decide the course of phthisis, or the fate of the patient. Many with extensive involvement, but without fever and the phenomena of toxemia, have a longer lease on life than some with a limited lesion, but presenting acute or subacute subjective symptoms.

RECAPITULATION.

The significance of tuberculous excavations of the lungs is estimated by the consideration of two factors: The acuteness of the underlying process, and the time it took for the production of the cavity.

In very acute forms of tuberculosis cavitation is exceedingly rare. The prognosis is gloomy with or without localized destruction of pulmonary tissue. In adults such cases are rare, but in infants rapid cavity formation is seen at times and the termination is almost invariably fatal.

In subacute forms of phthisis, in which excavations are apt to form very rapidly, the prognosis is unfavorable, unless the cavity is rather small. In the latter case the disease may be attenuated and subsequently pursue a chronic course with the sequestration and expulsion of the affected area. Excavation is then the first step toward a diminution of the acuteness of the tuberculous process in the lung. The general symptoms may be ameliorated, as after the evacuation of an abscess.

In chronic phthisis, excavations, even when extensive, are compatible with a long and efficient life. These cavities are surrounded by a more or less dense fibrous capsule which limits their extension and are drained through a fistulous tract communicating with a bronchus. As long as the secretions are eliminated by expectoration, the patient may feel quite comfortable for years. Because they expectorate large numbers of tubercle bacilli, they are often sources of infection to a greater extent than many patients without excavations.

Pulmonary cavities may heal. When small, they may be obliterated by granulations or by calcification of their contents. Larger excavations may shrink, or, even when remaining of large dimensions, they may become altogether benign after the necrotic tissue has been expelled. They are, however, a constant source of danger for metastatic autoinfection.

On the whole, cavities are an indication of chronicity of the tuberculous process in the lung, showing that the resisting forces are active and as such are less dangerous than many cases which have by common consent been considered incipient and curable.

57 EAST NINETY-THIRD STREET.

verse valve produces suction instead of pumping. This instrument is employed at home during the time of treatment at the physician's office.

I have had one patient who has materially benefited by several home treatments daily in this manner. No untoward symptoms have attended the use of this syringe, and I believe that it presents a practical and efficient method for the treatment of sinusitis.

44 WEST FORTY-NINTH STREET.

SECRETIN AND ITS THERAPEUTIC POSSIBILITIES.*

By J. WALLACE BEVERIDGE, M. D.,
New York.

During the past decade a tremendous advance has been made in medicine along the lines of a better understanding of the physiological action of the ductless glands and their internal secretions. No line of scientific research in medicine has opened up such vast possibilities to the research investigator, as the phenomenon of the mechanism of the ductless glands, and their activators which have been given the name "hormones," and which day by day we are becoming more conversant with, and whose physiological action we are beginning to appreciate and understand.

If it had not been for the epoch making work and indomitable energy of such earnest workers as Sajous, of Philadelphia; S. P. Beebe, of New York; Hertoghe, of Belgium, and such physiologists as Bayliss and Starling, of London, Hustin, Pavloff, and others, the true action of the secretion of the ductless glands both in health and disease would still remain an unsolved theoretical problem. To Takamine, who conducted experiments in this country, is due the honor of first isolating and standardizing the active principle of the suprarenal gland. Since then a number of other glands have become available for producing active principles applicable for the therapeutic use. The principal ones, which we are now using successfully, are pituitrin extracted from the pituitary body in the brain, thyroid extract, and the active principle in the thyroid serum which Beebe has isolated; thymus extract and ovarian extract. All these glandular extracts or their active principles are taking a firm place in the pharmacopeia of today.

This very brief outline is given as an introductory to the possibilities which may be found in a hormone known as "secretin" found in the epithelial cell of the mucosa lining the duodenum, which unquestionably is the most active stimulator of the pancreatic gland known to physiologists and internists.

The discovery of secretin may almost be termed accidental, because the phenomenon first observed by Dolinski and Gottlieb, that when dilute hydrochloric acid was introduced into the intestinal tract, a perceptible increase in the secretion of the pancreatic gland was noticed. This observation led other research workers to question why. Then

Popielski, Wertheimer, and Lepage established the fact that the hypersecretion of the pancreas occurred, only when an excess of an acid medium came in contact with the duodenal mucosæ.

Following these early observations, Bayliss and Starling, in 1902, demonstrated the fact that there was something more complex, as an activating agent to the pancreatic gland, than the mere acid reflex heretofore observed. Pavloff then came forward with his theory explaining that the activation of the pancreas was not an acid which reflexly inhibited the secretion of the pancreas, but some unknown substance acting either through the circulation or by reflexly stimulating the nerve centres, and in this manner producing an increase in the flow of pancreatic juice. Bayliss and Starling working conjointly were finally able to demonstrate that Pavloff's assertion was correct, and they were the first to prove by experimentation, in the research laboratory of the University College in London, the presence of an excitant—a hormone which we now call secretin.

This discovery has proved to be one of the most important in physiological chemistry, by virtue of its positive action in stimulating the pancreas. The theory that hormones play a vital part in the chemistry of digestion was firmly established. Since this discovery, a period of more than twelve years has elapsed with little or no attempt to use this most available and potent substance for the relief of pancreatic insufficiency and intestinal stasis, perhaps largely owing to the fact that no one was able to produce a secretin artificially of sufficient activity as to remain stable long enough to find out what results might be observed from its oral administration. The method first indicated by Bayliss and Starling was intravenous injection, which is not practicable because of the unstable character of the product as prepared by Bayliss and Starling, which renders its administration dangerous.

There has arisen considerable question as to the potency of secretin when administered orally. Some English observers assert that no real physiological action results from the oral administration of secretin, which I shall endeavor to show is unwarranted, since my findings lead me to assert positively that secretin may be administered orally in certain conditions without disappointment and with more advantage than any other therapeutic agent at our command.

Chemically, we have not yet been able to prove just what secretin really is. It is not a ferment, but a protein substance of low molecular weight whose activity is greatly impaired by boiling. Secretin exerts a distinct physiological action upon the pancreas, augmenting its secretions. This action is not a reflex one such as stimulating the nerve supply by chemical irritation, but a direct one, as it is carried through the blood stream and in all probability acts directly upon the secretory cell itself. This has been proved experimentally upon animals by a goodly number of observers, but due credit must be given to Bayliss and Starling, who positively demonstrated that when all communication to the central nervous system had been obliterated, leaving only the blood supply to the pancreas intact, an increased secretion became at once apparent when acid stimulation was applied to the mucosa of the duodenum. Other

*Read before the Medical Association of the Greater City of New York, April 19, 1915.

functions which secretin possesses have been demonstrated by Delezenne and Frouin working at the Institut Pasteur in Paris. They have been able to show that secretin is capable of exerting a physiological action which without doubt increases the supply of succus entericus. It remained for Hallion to show that secretin was capable of increasing the peristalsis of the small and large intestines. The question arises, How are we able to show, and to what extent can we demonstrate, the therapeutic possibilities of secretin?

Several years ago, while doing considerable work in diabetes mellitus, a very interesting fact was established that gastric hyperacidity occurred in over eighty per cent. of the 300 cases observed. Now, what effect would this increased acidity have upon pancreatic action during digestion? We know that a very active substance is called forth by acid stimulation to the epithelial cell lining the duodenum, which passes into the blood stream and augments the secretory function of the pancreas. Whence it is reasonable to presume that if we have an excess stimulation through an acid medium of a delicate mechanism comprising the epithelial cell of the duodenum for a long period of time, a deterioration or a distinct destruction of the cell activity will eventually occur, and the power of the duodenal cell to respond to the production or manufacture of the active principle or excitant content, known as secretin, will be greatly impaired. Secondly, the action of the pancreas, when called upon to supply the necessary secretion required in terminal digestion, will, to a considerable extent, be lacking, and as a result of this condition, the protein molecule will only be partially broken down, while the carbohydrate molecule will also remain in an incomplete state of separation.

From a theoretical standpoint, an exhibition of secretin should aid in overcoming the incomplete breaking down of the protein and carbohydrate molecule. Clinically, however, this is not a fact, and in these cases wherein I have given secretin over a period of time ranging from three to seven months, in no instance have I observed any change in the sugar output of the urine. But there has been unquestionably a distinct action upon protein. Whether this is due to an increased activity of the pancreatic secretion or not, must for the present be left for further investigation, and confirmatory evidence from others who deem it advisable to use secretin in similar cases.

One method by which we may arrive at a clear estimation of whether or not the protein molecule was changed, is fairly simple and generally uniform in its manifestation, being confirmed by laboratory findings in this series of cases. Taking the urea output during twenty-four hours (an average of between fifty and sixty ounces of urine) as a standard in each individual case, the percentage of urea would range from one tenth to five tenths of one per cent. After the exhibition of secretin for two to three weeks, the urea output would gradually rise until it ranged between one and two per cent., never going below nine tenths of one per cent. in the twenty-four hours. This is a most interesting phenomenon, as shown in all cases of impaired metabolism, when the urea output has become dimin-

ished to such an extent as to fall below five tenths of one per cent. it should always be brought back to normal if possible.

In another series of more than 100 cases of thyroidism, complicated by chronic constipation of from five months' to eight years' standing, intestinal stasis was one of the predominating symptoms. We know that animal protein, when undigested or only partially broken down and incompletely absorbed as such in small quantities into the blood stream from the alimentary tract, is one of several causes of abnormal thyroid conditions. In conditions where chronic stasis exists, the gastric acidity first is increased, and then, if it continues for a sufficient time, it becomes greatly diminished, and the change in the acid content in the stomach will secondarily have a marked influence upon the production of secretin in the duodenum, with the accompanying deterioration of pancreatic response in its secretory production. When this occurs, a protein molecule is never completely broken down, and one of the main etiological factors in all thyroid conditions is the absorption of excess of protein, or protein which has not been completely broken down to the amino-acid stage required in normal digestion.

There are two ways of overcoming stasis, medical and surgical. In the medical treatment of stasis the mineral oils have been of great aid, as they act only in a mechanical way, exerting no physiological action whatever. In case of impaired metabolism, something more is needed than a mere mechanical agent, and secretin offers a satisfactory solution of the problem. Secretin has not only the power to increase peristalsis, but it exerts a distinct function in aiding terminal digestion in the small intestine by virtue of its action upon the pancreas; it increases the chemical breaking down of the protein molecule, which no other pharmaceutical agent is capable of doing. So we have in secretin a product which exerts two distinct powers—first to increase peristalsis, and, second, to aid in the normal digestion of protein.

The surgical methods of overcoming chronic intestinal stasis, I will leave untouched. This series of cases were nearly all radiographed by Professor A. J. Quimby, of the Polyclinic Hospital. After secretin had been given, his report in its conclusions stated that stasis no longer existed. Furthermore, the symptoms of malaise, pains in the knees and in the calves of the legs, with severe headache, entirely disappeared. The urea output, which had uniformly been subnormal, became normal; tachycardia, which was present in over sixty per cent. of cases, diminished.

Secretin has proved of distinct value in gastroenterostomy and jejunostomy. One case in particular might be cited of gastroenterostomy under my care at the French Hospital, which responded to secretin medication, that of Mrs. K., aged thirty-three years, removal of gallbladder and gastroenterostomy performed by Alexander Nicoll. Her postoperative symptoms were severe constipation, continued vomiting, very low urea output, loss of weight, malaise, frontal headaches, and distinct feeling of weakness; traces of albumin, no casts. Secretin was exhibited for five months in daily doses of one dram after meals and before retiring.

The stasis subsided, the vomiting ceased, the urea became normal, and the albumin disappeared, the malaise and weakness left, her weight increased twenty-seven pounds, and today, two years later, she is in splendid condition.

In nephritis of intestinal origin, secretin is one of our most valuable therapeutic agents, although I do not believe it has such a direct beneficial influence in clearing up indicanuria as *Bacillus bulgaricus*. But through increasing peristalsis and assisting the digestion of protein, it does aid in overcoming intestinal putrefaction, while through its influence albumin does ultimately disappear.

The contention of some authorities that secretin does not exert any physiological action when orally administered, is so far from the truth that it should be given no credence. If secretin is prepared as it should be, there is no question that distinct results will ensue, and in standardizing secretin, considerable care must be used in its preparation. We know that secretin is the active principle found in the epithelial cell lining the duodenum, which is liberated or produced by an acid coming in contact with the cell. For the artificial manufacture, the duodenum of pigs is preferable to that of other animals, because of the varied food that they eat. The process that I employ is at variance with Starling's. After we have scraped and cleaned the duodenal mucosa, we then macerate and add a small quantity of hydrochloric acid; this is then heated in a beaker or any other suitable vessel for three to five hours and completely digested, never permitting the heat to go above 210° F. During the process of heating, we add from one to two per cent. of the salts of the blood serum, and then filter, adding glycerin and alcohol in sufficient quantities to preserve it.

Ordinarily, secretin is an unstable, readily oxidizable product, and unless we fix it in some way, its activity is quickly lost. Furthermore, we have found that if secretin alone is injected into the blood stream, no pancreatic secretory excitation occurs. If an acid is injected into the blood stream, a similar negative result ensues. If blood serum salts alone, or Locke's physiological solution alone is injected, no result ensues; but if secretin is combined with blood serum salts or Locke's physiological solution, we have, when it is injected into the blood stream, an immediate response in the secretory activity of the pancreas. This is a most interesting experiment, and unless we do combine secretin with blood serum when injecting into the blood stream or giving it per os, a negative result will necessarily follow, and when secretin is combined, it is not so readily oxidized, and we thus obtain the true results through oral administration.

By way of summary: 1. Secretin is indicated in all pancreatic insufficiencies where true organic changes have not occurred. 2. It may be employed to advantage in aiding protein digestion. 3. It is the most important factor in raising a low urea output to normal. 4. It has no power to aid in the digestion or breaking down of the carbohydrate molecule. 5. It is indicated in gastroenterostomy and jejunostomy. 6. It is of distinct value in nephritis of intestinal origin. 7. It increases peristalsis and is indicated in all cases of stasis.

25 EAST SIXTIETH STREET.

FOREIGN BODY IN ESOPHAGUS.*

Removed by Esophagoscopy after X Ray Picture.

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AND M. M. BANOWITCH, M. D.,
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The following is reported as being of special interest on account of, 1, size of the foreign body; 2, shape; 3, length of time in esophagus before removal; 4, point of location in esophagus; 5, method of removal; 6, course and outcome.

CASE. Mrs. H. S., aged forty-two years, married, native of Hungary, housewife, admitted to the female medical service of the Har Moriah Hospital, January 31, 1915. Family history, negative. Previous personal history, rheumatism for the past twenty years. Facial erysipelas nine years ago with a good recovery. No history of having at any time swallowed any caustic, or corrosive agent such as potash, lye, ammonia, etc.

Present history: Six days prior to admission, while eating soup, remembers distinctly that after taking a table spoonful suddenly felt as if there was a lump in her throat. Immediately thereafter, felt severe pain just beneath the sternum at the ensiform cartilage. This pain radiated to the back and mostly to the left side of the chest. Pain was of a severe, intense, and sticking character and persisted all the time. Pain later radiated also to the right side of the chest. Was relieved somewhat by lying on the left side; it was difficult, because of the severe pain, to lie on the right side at all. At the time of onset of pain thought she must have swallowed a bone, although of this she was not certain.

Pain was intensified shortly after the taking of any food, fluid or solid in nature, but not at the time of swallowing the food. Upon taking her food, would be conscious of a sensation of fullness in the gullet and a feeling "that the food did not enter the stomach." Because of fear of pain provoked shortly after taking food, abstained from taking any nourishment. At no time did she vomit or regurgitate her food, but belched considerably after ingestion. This persisted until and after admission.

Physical examination: Well nourished, large frame, well developed, and apparently suffering from intense pain. Acetone odor to breath, probably due to starvation.

Auscultation of area just below the angle of the left scapula for the Kronecker and Meltzer sign gave, while swallowing food, a click, and then a delay of one half minute ensued before we could obtain the second murmur. According to the foregoing authors, the second murmur is to be heard from six to ten seconds later. Upon asking the patient to swallow empty, that is, no food or fluid, we first obtained a sound signifying the passage of food from the cardiac end of esophagus into the stomach. This in itself would explain a partial obstruction, for only upon second swallowing, which intensified the peristaltic action of the esophagus, did the food pass into the stomach. Passage of a soft rubber stomach tube and an esophageal bougie upon different occasions showed a distinct gripping of the tube and bougie at a distance of thirteen inches or 32.5 cm. from the teeth, and also distinct obstruction to further passage of either tube or bougie. X ray plate taken prior to admission failed to reveal a foreign body.

A fluoroscopic study by Dr. I. W. Held and Doctor Jablons with no meal of bismuth in suspension showed the air bag to be divided by a shadow, which was very likely that of a foreign body, possibly of the bone the patient thought she must have swallowed. The esophagus was then studied with bismuth in suspension with the patient standing with her right side to the screen and left to

*Case presented before the Clinical Society of Har Moriah Hospital, March 1, 1915; Alumni Association of Har Moriah Hospital, March 5, 1915.

the tube; as the bismuth came down the upper part of the esophagus it did so normally, but at the lower end it was seen to stop just a trifle above the cardia, which immediately caused the patient to scream out in pain. This pain radiated mostly to the left. Pain persisted during all the time of ex-



FIG. 1.—Illustrating actual dimensions and ragged edges of foreign body.

amination. More bismuth revealed an accumulation of it in the esophagus so that the esophagus appeared dilated in spindle shape fashion and tortuous. There was a distinct partial obstruction of the esophagus at its lower end, for the emptying of the bismuth from the esophagus into the stomach was not only very slow and protracted, but ribboned. At this point air got back into the esophagus, causing the patient to belch considerably, thus giving the darkening shadow to the esophagus in the plate. Filling of the stomach was considerably delayed owing to the obstruction at the lower end of the esophagus.

At this point a plate was taken. The plate shows fusiform dilatation of the esophagus and a tortuous elongation, with a distinct obstruction at the cardia due to a foreign body. Several days prior to admission to the hospital, Dr. Ernst Danziger performed an esophagoscopy under cocaine anesthesia, employing the Killian esophagoscope at about twelve inches or thirty cm. from the teeth to the posterior wall of gullet, and found a slight necrotic area of mucous membrane, which was easily removed with forceps because of its flabby attachment. During her stay in the hospital, which was sixteen days, the patient's temperature was normal, never rising above 101° F., and then only after a second esophagoscopy was performed, as described later. Her pulse and respiration were normal throughout, and four blood counts taken at different times showed no leucocytosis and no polynucleosis. The urine was negative throughout.

On February 4th, the patient expectorated one half dram of blood after vomiting it up, just after taking breakfast. Because of the lack of improvement with symptomatic treatment which was anesthesin, atropine, and codeine whenever necessary, Doctor Danziger volunteered to do another esophago-

scopy because there undoubtedly was a foreign body at the lower end of the esophagus.

On February 10th, under cocaine anesthesia, we employed again the Killian instrument; after repeated attempts, we desisted from further efforts because of fear of rupturing the esophagus, for the instrument failed to advance more than twelve inches or thirty cm. from the teeth on account of a distinct esophagospasm. Doctor Danziger was then kind enough to obtain the services of Dr. Sidney Yankauer to perform an esophagoscopy. On the day following, under general anesthesia, ether being used, Doctor Yankauer succeeded in extracting, by an esophagoscope, which was introduced to the extent of thirty-two cm. from the teeth, the foreign body, which looked like a bone.

The patient felt much relieved. There was no reaction shown by increase of pulse and respiration rate. No food was given for forty-eight hours after the operation, nutrient enemas being substituted and a demulcent medication prescribed of which resorcin was the base. The patient improved so rapidly that she could not be induced to remain in the hospital longer than a period of four days after the operation to allow us to study any sequelæ that might arise. However, the patient was seen two week later and another esophagoscopy was done under local anesthesia. An exploration of the esophagus at a distance between thirty and thirty-six cm. revealed healthy granulations along the posterior wall, showing a good end result.

In summing up, we should like to call attention to the fact that the foreign body was, as already stated, in the nature of a bone, as are the majority of all esophageal foreign bodies, the size of which was 3.5 by 2.5 by 1.5 cm., rectangular in shape, with ragged edges. The bone remained in the esophagus for a period of nineteen days and was found at a distance of about 32.5 cm. from the teeth, close to the cardia and imbedded within the mucous membrane so that to remove it by means of the esophagoscope required rotation around an axis, the instrument being drawn out before the bone, because the bone was of larger dimensions than the calibre of the instrument. A fortunate cir-

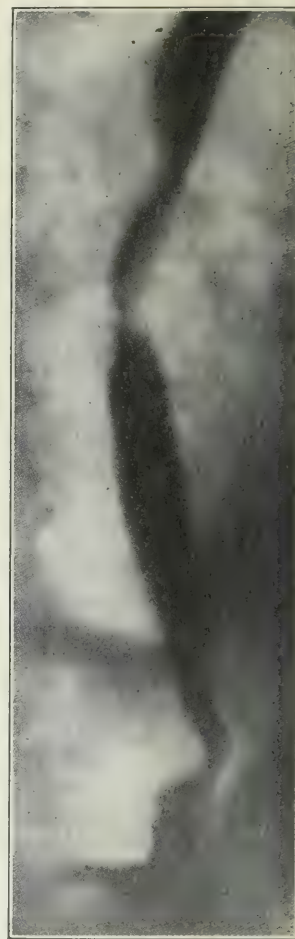


FIG. 2.—Showing tortuous spindle shaped and dilated esophagus with shadow due to foreign body at the cardia (courtesy of Dr. I. W. Held).

cumstance, both for the patient and for the successful outcome of the case, was that the foreign body was lodged near the cardiac end of the esophagus, and it is strange that the patient did not notice the ingestion of a foreign body of so great a size.

In conclusion, we wish to express our sincerest thanks to Doctor Danziger and Doctor Yankauer for the esophagoscopy and loan of cut; to the attending medical staff for valuable suggestions given, and to Dr. I. W. Held especially for his fluoroscopic study and x ray plate as well as for the opportunity of reporting this case.

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185A VERNON AVENUE, BROOKLYN.
160 VERNON AVENUE, BROOKLYN.

LIVER ABSCESS OF DOUBTFUL ETIOLOGY.

With Report of a Case.

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A solitary abscess of the liver, when not definitely known to be a direct sequela of amebic dysentery, typhoid fever, metastatic involvement, or direct infection, is of sufficient interest to report; and with this in mind the following history is given of a patient treated in the United States Marine Hospital, Louisville, Kentucky.

CASE. G. L., colored; laborer; aged twenty-nine years. Family history: Mother and one brother well. Father died of pneumonia. One brother dead, cause unknown. No history of cancer or tuberculosis in the family. Previous history: Patient had pneumonia when eight years old. Specific history negative. Had been a moderate drinker. Denied any history of intestinal trouble. Never had typhoid fever. Had always been healthy and strong, doing the heaviest kind of manual labor all his life. Present illness: On the morning of December 17, 1914, he was assisting in moving a piano, on a truck, to a boat, when the piano fell off, striking him severely on the legs and throwing him violently on the wharf. He was unable to get up or walk after this injury and was carried on board the boat where he remained until the steamer reached Louisville on the following day. He was then removed to the United States Marine Hospital in the ambulance, the afternoon of the 18th.

Physical examination: Well nourished, muscular colored man. Stated he was "feeling very well," except for severe pain over anterior region of the left tibia and dorsum of right foot where the injury was sustained. Pulse 72. Temperature 98° F. Respiration 18. Heart and lungs normal. Kidneys apparently normal. Urinalysis: Urine amber in color, acid reaction; specific gravity 1.025; no albumin, sugar, nor bile; no casts; a few epithelial cells and amorphous deposits.

A careful examination of the entire body revealed no areas of tenderness, except those of the lower extremities, and a diagnosis of contusion was made, there being no fracture. Over no portion of the body or extremities was the skin broken. The patient at this time was able to walk with the aid of a cane.

Course of illness: He began to improve after his entrance to the hospital, the pain gradually leaving his leg and foot. Temperature ranged between 98° and 99° F.

On December 21st, he experienced gripping pains in the abdomen, the temperature rising at this time to 101°; pulse 84. This condition was relieved by magnesium sulphate and the temperature dropped to 100° that evening. On the morning of the 22d, five days after his injury and four days after his admission to hospital, he experienced intense pains at the lower margin of the twelfth rib, right side, over the region of the gallbladder. Temperature went up to 104° F., pulse 84. Examination at site of pain revealed a slightly elevated area a little larger than a silver dollar and very painful upon palpation. The right rectus was slightly rigid—more so at the upper attachment. From that time on the disease ran an acute course, the temperature fluctuating between 102.4° and 100° F., the pulse remaining almost constant at 84. The pain was variable, being more acute at times. This condition was relieved by hot and cold applications. The urine was of a darker color, and another examination showed the presence of much bile. A white count gave 11,800 leucocytes, the polynuclears greatly predominating. The eyes began to become icteroid in color and gallbladder or liver complications were suspected. This condition continued for a few days, re-

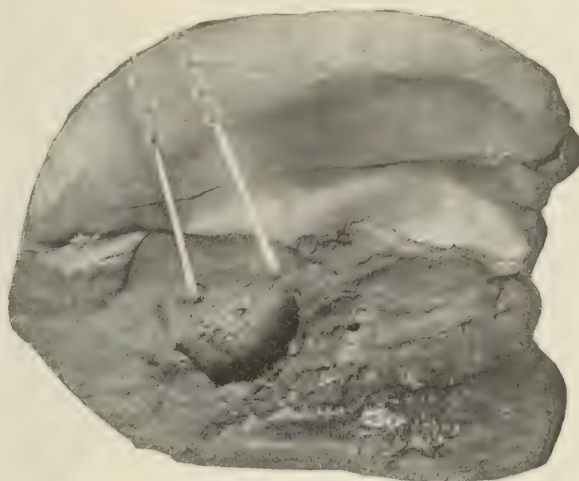


FIG. 1.—Cross section of liver showing abscess in left lobe.

fractive to all medication, and a consultation was decided on. Dr. C. B. Spaulding, of this city, was called in consultation and it was agreed that an exploratory operation was indicated and without delay.

Operation: Type, exploratory. An incision was made from the lower border of the last rib, right side, at a point midway between the axillary line and midsternal line, extending about five inches downward parallel to the median raphe. Abdominal cavity opened and gallbladder exposed. It was found to be a little smaller than normal but non-pathological. No stones either in the gallbladder or ducts were found. Examination of the liver showed it to be somewhat enlarged downward and to the left. No adhesions whatever were found around the region of the gallbladder or between the liver and the parietal peritoneum. Nothing could be found in this region to account for the train of symptoms.

An examination of the appendix showed it to be somewhat congested and elongated. No adhesions were present. An appendectomy was done as a precautionary measure, the abdomen closed, and the patient returned to bed. He reacted normally, temperature dropped to normal the next day, and the old pain disappeared. From this time on, the clinical aspect of the case was much improved; the patient talked and answered questions and a good re-

covery was hoped for. On the afternoon of January 1st, he passed a small quantity of urine, full of bile. The temperature arose to 100.4° F. and he became slightly delirious. He grew steadily worse from that time on and the delirium increased. The eyes were injected a deep yellow and the tongue had an icteroid tinge. On the morning of January 2d his temperature, by rectum, was 100.8°, and he remained comatose and died in convulsions. A post mortem examination was made and the following noted:

Well nourished muscular colored man about thirty years old. Eyes, nails, and skin deeply jaundiced. Incision made from between articulations of second ribs on sternum down median line to pubes; subcutaneous tissues injected yellow. Upon cutting through the peritoneum, the liver was found to be greatly enlarged downward and to the left, and bulging forward, resembling a tumor. A nick was made in the liver on cutting the peritoneal wall.

Lungs, apparently normal. Heart, normal; stained yellow. Stomach, greatly distended with gas and stained a deep yellow. Intestines, distended with gas; yellow tinged. Healing process at the site of appendectomy. Large intestine removed and opened. Examination of inner wall negative. Kidneys, enlarged and congested. One removed and opened. Examination negative. Spleen, slightly enlarged. Almost black in color. Liver, removed; incision made in median line along posterior and inferior surfaces. In the lower posterior portion of the left lobe, a small abscess was opened, which freely drained a thick yellow pus. The cavity of this abscess was about two inches long by one and one half inch deep, one wall of which was in the quadrate lobe. (Figs. 1 and 2.) One quarter inch of healthy tissue separated the cavity from the anterior surface of the left lobe. The lining capsule was easily stripped off and found to be smooth although folded on itself in places, like rugæ. This cavity was in close relation to the portal vein, hepatic artery, and bile duct. No other abscess was found. Without ligamentous attachments and after the cavity was emptied, the liver weighed sixty-six ounces.

The discharge from this abscess was given a thorough examination by Mr. M. V. Veldee, bacteriologist, United States Public Health Service, and the following is his report:

"Smear preparations of the pus and cultures in laboratory media resulted in the identification of the following organisms: A. *Staphylococcus pyogenes aureus*. B. An organism of the streptococcus pyogenes group. This coccus was of the *longus* variety, showing chains of over twenty-five organisms from broth cultures. C. A short, plump, Gram negative bacillus, producing gas in lactose broth and coagulating milk. Growth on Endo's medium gave a bright metallic lustre—organism, *Bacillus coli*. D. A large Gram positive, nonmotile, obligatory anaerobic capsulated bacillus of a variable length. Some of the bacilli were not unlike the anthrax bacillus, having square ends, occurring in short chains of two or three organisms, and measuring from five to six micra in length. Those not occurring in chains were rounded at the ends and somewhat thicker than the former. These measured from 2.5 to 4 micra in length. An occasional organism appeared so short as to be almost coccoid. Vigorous gas formation accompanied by an offensive odor, resulted from twenty-four hour cultures in ordinary laboratory sugar broth. As a further confirmatory test, two c. c. of a twenty-four hour broth culture was injected into the ear vein of a rabbit. A few hours later the rabbit was killed and its body incubated at 37° C. for

twelve hours. At the autopsy gas bubbles were found in the different organs, most characteristically in the liver. Blood smears from the heart, kidney, and liver showed a large square ended organism, as described above, but occurring in longer chains. No short, irregular bacilli were found. These morphological and cultural characteristics agree minutely with the descriptions given for *Bacillus aerogenes capsulatus* in Hiss and Zinsser's *Textbook on Bacteriology*, and accordingly has been identified as such. E. A microscopical examination of the original pus failed to reveal any ameba."

COMMENTS.

In dealing with a hepatic abscess the following etiological factors must be considered: Amebic dysentery, typhoid fever, metastatic infection (pyemic abscess), direct infection through open wounds, and trauma. Although an abscess following amebic infection is common in the tropics, it is a compara-

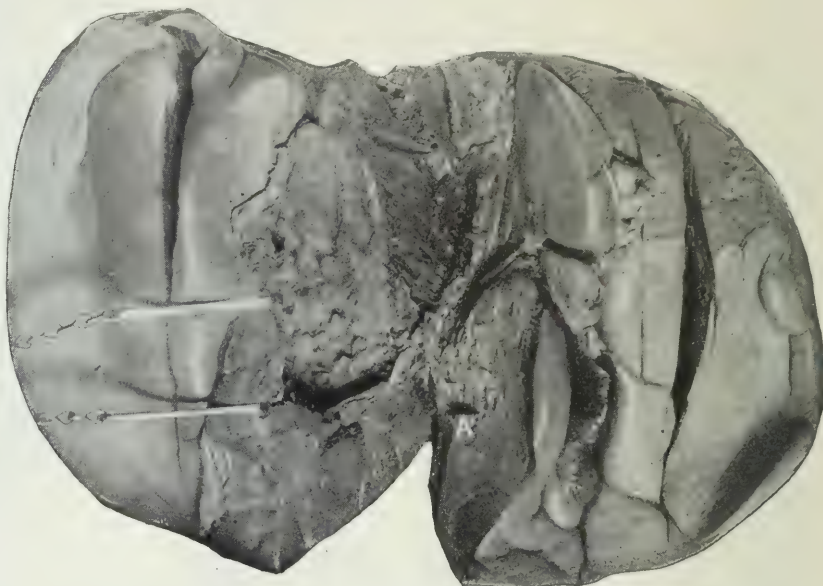


FIG. 2.—Showing the right and left lobes of the liver separated by an incision through the posterior and inferior surfaces. The other incisions were made in search for other abscess. A, right wall in quadrate lobe.

tively rare condition in this country, owing to the fewer cases of dysentery.

The patient in question had never been out of this country, had been employed most of his life on steamers running between Louisville and Cincinnati, and had never been further south than Evansville, Indiana. So it is reasonable to presume, with his negative history of dysentery, with the nature of the abscess, the negative findings for ameba, and the healthy condition of the mucosa of the large intestine, that this condition was not a sequela of amebic dysentery.

The negative history of typhoid fever with negative findings would seem to eliminate this factor. Metastatic infection cannot be considered, for there was no primary focus, while a direct infection plays a negative role, as there was not a scratch on his body following the injury. Infections of this sort, as a rule, give multiple abscesses.

Last and least common are those due to trauma. From time to time cases have been reported as being the direct sequelæ of violent blows or crushing force, the following being quoted in an editorial

article in the *NEW YORK MEDICAL JOURNAL* for November 9, 1912: Morehead reported 4 in a series of 318 cases=1.4 per cent.; Braquehaie reported 3 in a series of 30 cases=10 per cent.; Edlar reported 23 in a series of 203 cases=11.3 per cent. So this etiological factor is not as rare as might be supposed, although Wyeth holds that a circumscribed collection of pus in the liver is comparatively rare. As is well known, a traumatic abscess is of this nature.

The following facts in this case would point to the injury as being the predisposing cause: 1. History of development; 2, pathology of abscess: (a) Single; (b) position (superficial); (c) definite capsule with smooth wall; (d) microscopical findings.

There seems to be a direct connection between this man's injury and the abscess following which so rapidly caused his death. Prior to that time he had been healthy and strong, doing the heaviest of manual labor and never, at any time, experiencing pain or discomfort in the hepatic region. Five days after the accident he developed the symptoms noted, and sixteen days from the time of the injury he died from the effects of biliary and septicemic toxemia brought about by an abscess and hepatitis.

It is interesting to note that upon repeated questioning the patient always denied being hurt in the affected region and the physical examination bore out that statement.

A single superficial abscess with a smooth lining capsule and containing only those pyogenic organisms normally found in the intestinal tract, is indicative, nearly always, of an abscess traumatic in origin. So the final line of reasoning left open is that the liver did receive a trauma, either directly or indirectly, at the time the man was knocked down, the pain in that region being masked by the intense pain experienced in the lower extremities, and this area being weakened in the natural powers of resistance, proved a fruitful soil for infection. The organisms producing this infection undoubtedly came from the intestinal tract, and upon reaching the liver by the portal system or lymphatics, exerted their toxic action with rapid necrosis of the liver tissue. An abscess of that size could easily form in sixteen days, as liver tissue degenerates very rapidly.

The congested appendix proves of interest as a possible source of infection, for hepatic infections, appendicular in origin, do occur, but nearly always result in multiple abscesses.

CONCLUSIONS.

1. A single abscess formed with indefinite history as to etiology.
2. Nothing pathological showed at the time of operation.
3. The small abscess proved rapidly fatal.
4. It contained only the organisms found in the intestinal tract.

UNITED STATES MARINE HOSPITAL.

Fractures of the Base of the Skull.—It is stated in the *American Journal of Surgery* that in cases of fracture of the base of the skull, operation is not indicated unless the cerebral symptoms are persistent or progressive.

FIRST AID KITS FOR FACTORIES.

A New and Simple Kit Especially Adapted to the Garment Trades.

BY GEORGE M. PRICE, M. D.,
New York,

Director, Joint Board of Sanitary Control in the Cloak, Suit and Skirt and the Dress and Waist Industries.

There is a universal demand for a proper kit to be placed in industrial establishments and factories for first aid service to the injured. This is especially the case since the enactment of workmen's compensation laws in various States. The Industrial Board of the New York State Department of Labor and other States has a mandatory provision for first aid facilities in factories.

A first aid kit consists essentially of two parts; 1, the container and, 2, the contents. There are two particular types of containers; a cabinet and a portable jar. Cabinets are made of wood, some of metal. They are intended to be hung in some conspicuous place. The objection to cabinets is that they are, as a rule, not portable; that the contents are easily spilled through jars and concussion; and that, when of wood, they easily dry, shrink, and become full of dust and dirt. Moreover, hardly any of them have proper locks, are always open, and contents are easily lost or stolen.

The other type of container consists of a wooden, tin, or glass box or jar. The most popular type of these is the first aid jar adopted by the National Association of Manufacturers, which is called the N. A. S. O. Standard First Aid Jar. This jar is made of glass with a glass cover into which is moulded a convenient carrying handle, and the cover is held on the jar by suitable spring clips which are a part of the metal case in which the whole jar sits. The jar is dust proof, but is very heavy and, being of glass, is liable to break. Some form of a glass jar is used also by many industrial concerns.

I consider glass jars inconvenient for containers for first aid kits, because of their weight and because they are so easily broken. The container, which I have devised for the cloak, suit and skirt, and dress and waist industries, consists of a white enamel metal box in which are placed four glass jars with aluminum covers containing the various bandages, dressings, instruments, and medicines specially needed for accidents and injuries occurring in the needle trades. Explicit instructions in simple language for the use of the contents for various injuries are printed on the front drop of the box. This container is portable, dust proof, convenient, and inexpensive.

As to contents, all of the first aid kits, whether of the cabinet or of the jar type, are, without exception, *overstocked*. They contain too many things which are not needed and are useless; the fewer or simpler the contents, the more practical and useful. A kit is intended for first aid given by the unskilled foreman or employee of the shop to the injured before the arrival of the physician. Such first aid facilities should be very simple and should contain only the most necessary and inexpensive materials.

Most of the first aid kits contain rubber tourni-

quets which become useless after a certain time and which may be replaced by a handkerchief or an ordinary bandage. They also contain the usual caron oil, which after a little time becomes useless, and also a number of drugs, the use of which is unknown to the ordinary employee of the shop.

Moreover, no attention is usually paid to the fact that there should be a difference in the character of the contents according to the character of the indus-

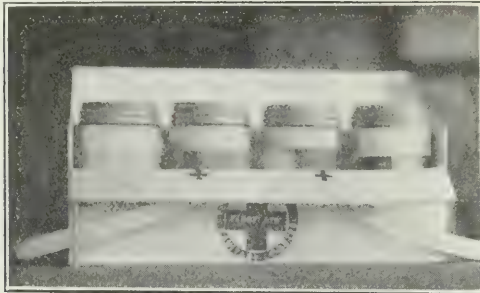


FIG. 1.—First aid kit (open).

try and the factory for which the kit is intended. A first aid kit for a metal shop needs to be different from a kit for a chemical factory in which alkalis or acids are manufactured. The contents of the first aid medical service kit, specially devised for the needle trades, are as follows:

Jar No. 1 contains six half ounce packages of cotton, individually wrapped and sealed. Jar No. 2 contains twelve sterilized and sealed packages of gauze and one half pound of assorted bandages. Jar No. 3 contains a roll of adhesive plaster, three per cent. sodium bicarbonate, petroleum ointment for burns, six drinking cups, safety pins, wooden applicators in a test tube, and a simple tourniquet consisting of a strip of cotton bandage one yard long. Jar No. 4 contains two ounces each of tincture of iodine (half strength), aromatic spirits of ammonia, and boric acid; a pair of scissors; artery clamps to be used as forceps for drawing out splinters or broken off needles; and an aluminum spoon. The cost of this simple first aid medical kit is \$4.25.

The foregoing are all the contents necessary for a simple first aid kit to be used in the garment

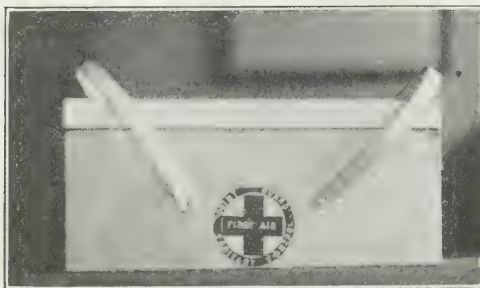


FIG. 2.—First aid kit (closed).

trades. A similar kit may be adapted for other injuries by addition of another jar or two containing the materials necessary for these industries.

The most important part, of course, of a first aid service is not so much the kit itself as the knowledge of how to use it. For this it is necessary, not only to provide such kits in every shop, but to provide for the instruction of employees in their use and also for a monthly visit and inspection by a compe-

tent nurse to every factory in order to see to the contents and that there are persons skilled in the manner of their use. The best service that is needed for this purpose is the regular monthly visit of a nurse to the establishment, or a regular factory nurse's service in every industry. The Joint Board of Sanitary Control in the Cloak, Suit and Skirt, and Dress and Waist Industries has introduced, with the aid of Miss Lillian D. Wald, head of the Nurses' Settlement, a factory nursing service in 500 shops belonging to the members of the Cloak, Suit, and Skirt Manufacturers' Protective Association and the Dress and Waist Manufacturers' Association. This service will consist in monthly or more frequent visits of a trained nurse to the shops, the teaching by the nurse of somebody in the shop who is competent to use the simple contents of the kit, and such other nursing service as may be found necessary.

SOME DISORDERS OF THE FOOT SIMULATING WEAK FOOT.*

By EMIL S. GEIST, M. D., F. A. C. S.,

Minneapolis,

Assistant Professor of Orthopedic Surgery, University of Minnesota.

When I was a student, I was warned against diagnosing what was really a flat foot as rheumatism of the feet. It seems to have been a common mistake of the average practitioner of that time to treat these sufferers of weak foot by the administration of salicylates and other antirheumatics because they did not recognize the case as being one of true so called flat foot. Rheumatism of the feet was, therefore, a common diagnosis when, in reality, there existed a more or less marked condition of weak foot. It was the endeavor of the orthopedist to correct this frequent error of his brother, the general practitioner, and it must be said that the lesson was well learned; in fact, perhaps too well learned. At the present time, it seems that the pendulum has swung too far in the other direction.

Owing to the fact that physicians in general are well aware of the frequent occurrence of weak foot; further, that bracemakers, shoemakers, arch manufacturers, and others, have by wide spread advertising, to a great degree attracted the attention of the general public to the condition of flat foot, it has come to pass that there is hardly a case of foot trouble, no matter what its origin or nature, but comes to the orthopedist wearing some form of arch support. In other words, a great many varieties of foot trouble appear in the office of the orthopedist wearing "flat foot braces," which cases do not present flat foot at all, but some entirely different condition. I should say that seventy-five per cent. of the patients coming to my office complaining of foot trouble, arrive wearing some sort of arch device, worn sometimes by the advice of a physician, more often, however, being the result of the activity of the counter prescribing variety of shoemaker and bracemaker, or as the result of the patient's own diagnosis of his case.

It is the purpose of this paper to draw attention

*Read before the Wayne County Medical Society, Detroit, December 28, 1914.

to some of those diseases of the foot which, at times, simulate weak foot; cases in which either I myself, or some other equally competent fellow practitioner, has fallen into error. Every patient cited in the following came to the office after having sought relief in some form of arch device. It is, therefore, largely the aim of this communication to bring home once more the fact that not every foot complaint need necessarily be due to what nowadays we term weak foot; there are a great many conditions which simulate it at times.

When we realize the manifold aspects of the symptomatology of weak foot itself, and that similar lesion called "Morton's foot," or "anterior metatarsalgia," the question of differential diagnosis often becomes difficult. Nor should it be forgotten that in a great many of the conditions to be hereinafter mentioned, there occurs a certain amount of imbalance and consequent foot strain, in other words, secondary weak foot symptoms, which make the clinical picture still more confusing.

1. *Foreign bodies.* It seems hardly credible that the presence of foreign bodies can be mistaken for weak foot. Nevertheless the following case may prove instructive:

CASE I. A fireman, jumping from a wreck, injured his left foot on alighting on the ground from the moving train, by striking it in some coarse sand. At the time of the accident, there existed soft tissue injury only, which promptly healed. One year later, I saw the patient; he was complaining of severe pain in the heel, as well as under the balls of the toes. He gave a history of having tried all sorts of mechanical devices, none of which seemed to have given very much relief. The trouble was unilateral, the injured foot being the only one giving symptoms. Believing that this man might have been suffering from some form of unrecognized fracture, x rays were taken, which showed, under the heel, as well as in the fatty areolar tissue under the balls of the toes, seven or eight foreign bodies. On operation, these proved to be small, sharp pebbles lying in small cystlike areas, which contained, beside the foreign body, some bloody serous fluid which showed that these pebbles were not lying idle. Prompt recovery followed the removal of these pebbles.

It has been my experience in at least five or six cases to find in a case of supposed weak foot, a needle, either under the heel or under the head of one or another metatarsal, which was giving all of the local trouble and which was producing weak foot symptoms, which, of course, were secondary to the primary cause. Be it remembered that in none of these cases was the presence of a needle suspected. In each case, the finding of the needle was a distinct surprise. In all of these cases, the trouble was unilateral.

2. *Fractures.* This is another condition in which a mistaken diagnosis seems impossible. At the same time, permit me to cite a case:

CASE II. A man, aged forty years, in playing hand ball, suddenly "stretched a cord," limped for a few days, then the trouble apparently ceased for a while, only to return. Seen months later, the entire foot was sore, but the chief tenderness seemed to be situated over the base of the fifth metatarsal. The trouble was unilateral. The shoemaker advised a brace which gave no relief. X ray showed fracture of the base of the fifth metatarsal.

I have seen several cases in which fracture of the os calcis went unrecognized, the patient having been treated for "traumatic flat foot." Fractures of the metatarsals are often the results of ridiculously insignificant accidents; injuries which are so slight

at times that they are forgotten within a day or two. Foot trouble persists, however, and I have seen the mistake made of calling a fracture in the vicinity of the head of the third or fourth metatarsal, "Morton's toe" and treating it accordingly. Fracture of the scaphoid is a rare condition. That it, however, may occasionally simulate weak foot is shown in the case of a young man, an athlete, who strained his foot slightly at some gymnastic feat. He was sent by the gymnasium director for a brace. The trouble—pain, tenderness in the region of the scaphoid bone—was entirely unilateral and the x ray showed a linear fracture of the scaphoid. All of the cases of fracture which came to the office with some sort of arch device, were unilateral.

3. *Growth disturbances.* There are several conditions which, in a growing child, or adolescent, can simulate weak foot pains.

(a) The first of those to be mentioned is that disease which is called apophysitis of the os calcis. Here, the trouble is usually unilateral and is evidently due to some disease, or the result of mild injury to the caplike epiphysis of the os calcis. It is characterized by pain and tenderness about the heel. The trouble may be unilateral or bilateral.

(b) The second disorder which we must look out for in these adolescents has been described by Koehler. There exist pain and tenderness in the region of the scaphoid bone. The x ray reveals abnormal smallness of this bone. The etiology of this disorder is not known. The prognosis seems to be good. Up to date, I have not recognized a case.

(c) We are all, no doubt, acquainted with the perfectly normal structures often to be found on the inner portion of the scaphoid bone called the "accessory scaphoid." As we know, this accessory bone occurs in about ten or twelve per cent. in the normal. This structure may be normally unilateral or bilateral. I have had several cases in which there existed marked tenderness over this accessory bone in the growing adolescent, sometimes preceded by slight injury and sometimes not. I believe that here we were dealing with a disorder of the cartilage between the scaphoid and the accessory scaphoid similar to that which Schlatter and Osgood described independently as occurring in the upper tibial epiphysis of the adolescent.

4. *Congenital anomalies.* I should like to report the case of a young man, twenty years old, who presented the clinical condition of marked fixed pronated flat foot on both sides. Before forcible correction of these feet, it has become my habit to x ray all of them in order to get some information as to the secondary bone changes which may have occurred in these long standing cases and which usually have occurred. Much to my surprise, in this particular case, I found congenital ankylosis in the tarsus of each foot. The right foot presented ankylosis between the sustentaculum tali and the cuboid bone. The left foot presented ankylosis between the scaphoid and the cuneiform bones. Here, the supposed rigid flat foot had a congenital anatomical basis and attempted forcible correction would have been unsuccessful, if not harmful to the patient.

5. *Loose bodies in joints.* I have to report the case of a heavy man complaining of symptoms in his right foot; pain in the foot, inability to walk long

distances. The patient complained that his foot twisted easily in walking on rough, uneven surfaces; that occasionally the giving away of the foot would almost throw him. After such an attack, the entire foot would be sore, and walking would be more painful than usual. The trouble was entirely unilateral. This patient had been attempting to get relief from various forms of braces for the last five years. X ray examination revealed two loose bodies in the ankle joint, which were easily removed through an anterior incision.

Freiberg has described several cases of loose body in the metatarsophalangeal joints, the symptoms of which could easily have been mistaken by one less well informed, for so called Morton's toe. Here again, the trouble usually is unilateral.

6. *Infections.* (a) Tuberculosis. Tuberculosis, as before mentioned, has been a stumbling block over which many have tripped, the diagnosis of unilateral flat foot having been made. One of my own experiences will perhaps illustrate what I mean:

CASE III. Lady, aged about thirty-five years, complained of typical flat foot symptoms; the only thing that was not typical was that the condition was unilateral. I treated her according to all the principles laid down for the proper care of weak foot without results. My suspicions being aroused, frequent x rays were made at intervals; this was before the time of the widespread use of tuberculin for diagnostic purpose. These never showed diseased bone, and it was not until about one and one half year after treatment had been begun, that a focus of disease became apparent in the head of the astragalus. The patient, of course, was informed of this, and the diagnosis changed from that of flat foot to tuberculosis, whereupon she promptly consulted another orthopedist who, after carefully examining the foot, told her she was not suffering from tuberculosis, but that she had a case of ordinary flat foot which was being well taken care of, and that she should return to me for continued treatment. As it happened, the patient returned for treatment, and on operation—transverse resection of the tarsus—the diagnosis of tuberculosis was clinically corroborated.

CASE IV. A young man complained of trouble in one foot, increased when walking long distances. No pain at night. Some tenderness about the ankle joint; this, however, not very marked. Pain radiated down from the ankle into the foot. X ray negative. Trouble unilateral. On physical examination, we found apparent moderate flattening of the longitudinal arch of the foot, some valgus position at the ankle. An arch applied by myself gave no relief. The case was observed for a few months, when a slight amount of swelling appeared about the ankle joint. Patient was sent to the hospital for subcutaneous tuberculin test which proved markedly positive. X ray, at the same time, showed slight cloudiness and a slight amount of bone atrophy. Diagnosis, tuberculosis of the ankle.

Twice more, that I am aware of, did I make the mistake of calling a beginning tuberculous ankle, a weak foot. In several other patients with tuberculous ankle who consulted me, have I seen the same mistake made by others—all experienced men. These experiences have made me extremely chary of calling any unilateral foot complaint weak foot, unless I have, by all the means at my disposal excluded tuberculosis and the other disorders mentioned.

(b) Syphilis. I have seen several cases of unilateral foot disorder, mistaken for weak foot, which, on careful examination, proved to be syphilitic in character. In these cases, it is necessary to invoke the Wassermann test before arriving at a definite conclusion. I have x rays of two cases, one of which shows the syphilitic disease of a metatarsal

bone, the other of the lower end of the tibia. The latest named case came for advice wearing an ankle support which had been put on by the country practitioner. In this disease, as in others, the fact that the trouble is unilateral ought to attract our notice.

(c) Gonorrhea. I feel personally that the relationship of gonorrhea and foot complaint is not understood as it ought to be. Certain it is that every year we see a number of cases presenting what we are pleased to call "gonorrheal flat foot"; cases in which the relationship between the onset and the original urethral infection and that of foot symptoms is too constant to be merely a coincidence. Frequently the patient states that the chief tenderness and pain exist at the bottom of the heel. We are well acquainted with the normal bursæ in this region. In one case, I had the temerity to cut down upon this bursa when the trouble was recent, hoping that I could show the presence of gonococci in this acutely involved bursa. I was unable to do so. However, destruction of the bursa at the time of operation by means of pure carbolic acid resulted in a clinical cure. At best these cases are slow to improve. Attention to the primary focus of infection is absolutely necessary, if our efforts at cure are to prove of avail.

Calcaneal spurs should be mentioned in this connection. What relationship they may have to gonorrhea has not yet been definitely proved; that there exists such a relationship, however, I believe is not to be doubted. That, on the other hand, they may occur as normal findings is also true, although I believe this to be a moderately rare occurrence.

In the study of one hundred normal feet, recently made, with another object in view, I found a spur in only one case. While I believe that all cases presenting painful heels and showing a spur by the x ray should in the beginning be treated conservatively, a certain number of them will not yield to this palliative, conservative form of treatment. After having fully tried it out, I do not hesitate to advise operative removal of the supposedly offending spur.

(d) Chronic arthritis. We frequently see middle-aged or elderly people presenting foot symptoms which remind one strongly of weak foot. In fact, how much of the pain is due to chronic arthritis and how much to the secondary static disturbances. I am very often at a loss to say. The fact remains, however, that the arthritic changes are primary and their presence must be recognized if the prognosis and treatment are to be correct. I do not wish to confound this condition with the arthritic changes which we so often see in patients of almost any age where the condition of weak foot has been present for years. In the cases under consideration, the primary trouble is the chronic arthritis. The patient complains of pain at irregular intervals. Very often this pain is not increased by use of the foot. Rather do we find that the feet are more painful when the patient is resting or even during the night. Points of tenderness are present as in ordinary weak foot. The trouble is usually bilateral.

If we x ray these patients, we usually find some of the typical changes of chronic arthritis in the small joints of the foot. Very often the symptoms

elsewhere are so slight that the patient does not remember them until we elicit information by direct inquiry. It is important to make the correct diagnosis instead of that of weak foot, since the course of the disease is so very different. Arches and supports frequently accentuate the symptoms instead of relieving them. In my work, I find that it is an error frequently made for some one to call a beginning chronic arthritis of the feet, weak foot. The x ray usually gives us some definite information as to the differential diagnosis.

(e) Osteoperiostitis. I have had several cases, both unilateral and bilateral, which I can describe by no other term than the foregoing. The region affected seems to be the periosteum of the tarsal, and sometimes the metatarsal bones anterior to Chopart's joint. Most frequently the pain and tenderness are on the dorsum of the foot. Invariably these patients come with a history of having tried various supports. Whether this trouble is infectious, or whether it is simply a periosteal change due to age, I do not know. Certain it is that it is a most distressing one to the patient, the pain at times being of exceeding severity. The x ray in a few of these cases has shown irregularities on the surface of the bones in the region affected—the greatest amount of irregularity existing at the region of greatest sensitiveness. The joints themselves seem to be free from involvement.

In two of these cases, I have cut down and attempted to smooth the roughened bone surface and to destroy the periosteum. The patients react positively neither to tuberculin nor to the Wassermann test. The operation cited above, in two cases, has given only moderate relief. I cite this disorder in the hope of learning from my readers more about it, as to etiology, prognosis, and treatment.

7. *Tumors*: Tubby, Beckman, and others describe cartilaginous and fat tumors which have been the cause of much suffering, often simulating weak foot. These must be reckoned with. They are usually unilateral and the diagnosis is easily made with the x ray.

8. *Circulatory disturbances*. (a) Varicose veins are often present in patients coming to me for their foot troubles, and I have come to consider them quite an important factor in the etiology of the foot disturbances of patients presenting veins so affected. It is absolutely essential to attend to these enlarged veins, beside giving topical treatment—if our efforts of relief are to be followed by success.

(b) Regarding the next group of circulatory disturbances, there still exists in my mind, and evidently also in the minds of others, some confusion. An able paper has just appeared in the *Annals of Surgery* for December, 1914, by Collins, of New York, attempting to classify the circulatory disturbances of the extremities. I invite attention to this article for detailed information. The only varieties I wish to touch upon are those which seem to be due to local anemia of the foot, or feet. The patients are frequently of the well-to-do class, heavy eaters, moderate drinkers, often excessive smokers. The complaint is that the feet cramp often, both at rest and during action. On examination, we fre-

quently find poor arterial circulation. Frequently the pulse of the dorsalis pedis artery is absent on one side or both. Very frequently it is barely to be discerned. The x ray often shows premature calcification of the arterial walls.

In my office, I often diagnose what a German author (whose name at the present time I cannot recall) has termed "tobacco foot." The vessels are patent and often soft. The symptoms complained of are often those given above. I have come to consider these cases ones in which there exists at times spasm of the arterial vessels due to excessive smoking, and I have often witnessed clinical improvement and even cure just by the discontinuance of tobacco.

In treating foot disorders of those of middle age and advanced age, it is necessary to recognize the relationship of the afferent and efferent blood supply to the function of the foot. If we remember this relation, we shall frequently recognize cases of what might be termed trophic foot disturbance which may easily be mistaken for the ordinary type of static weak foot. It may be said that in all cases of foot trouble due to circulatory disturbances, braces of the ordinary type usually increase pain rather than ameliorate it. In circulatory foot disturbances, bilaterality is the rule. The x ray gives only occasional information of value.

CONCLUSIONS.

If conclusions can be drawn from this rather heterogeneous mass of testimony, they might be the following:

1. Every patient complaining of foot trouble is entitled to extremely careful examination. The more I see of patients with foot afflictions, the more I realize the wide diversity of pathological lesions which can bring on symptoms.

2. The x ray is often a valuable aid in the diagnosis of chronic foot trouble.

3. One must be extremely careful in making the diagnosis of "unilateral weak foot" or "flat foot." In my own work, I must say that I am afraid to make this diagnosis, as I feel I shall often have to correct it later.

CEREBRAL TRAUMA AND ACUTE DILATATION OF THE STOMACH.

Report of a Case.

By HERMAN A. HAUBOLD, M. D.,
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The writer's more or less nebulous conception of the causative relationship between brain injury and acute dilatation of the stomach became somewhat solidified as the outcome of a case recently observed. In cases of severe cerebral injury complicating fracture of the skull, especially fracture of the base of the skull, a paralysis of the innervation of the stomach and indeed the gut may be regarded rationally to belong together. More especially does this obtain in fatal cases, though the writer is frank to admit that the association as regards causative connection has only recently occurred to him.

In cases of fracture of the skull, the vomiting of

blood, more or less changed in appearance, the outcome of brief or protracted action of the gastric juice, has been ascribed to involvement of the cribiform plate of the ethmoid, to the flow of blood through the Eustachian tube from the fracture through the petrous bone (middle ear), or possibly laceration of the mucosa in the vault of the pharynx, thus allowing of the passage of blood through the esophagus into the stomach to be subsequently vomited. Since viewing the subject from the standpoint of the association of cerebral injury, even a comparatively slight one, and acute dilatation of the stomach, it would seem justifiable to account for the presence of blood in the vomitus as perhaps explainable on other grounds than the conception of the entrance of blood into the stomach through the esophagus.

The recognition of the possibility involved in the idea as expressed above should have an important bearing on treatment and indeed on the prognosis in this class of cases, more especially as most men who see a number of cases of cranial injury have seen some in which a fatal outcome followed comparatively slight trauma, and if the explanation lies in the direction indicated by this effort, burdening still further the literature in this connection would seem to be justified.

CASE. The case forming the basis of this communication was that of a child (girl), aged four years, who, while rapidly running, fell, striking the right frontal region with considerable force against the stone pavement. No appreciable disturbance of consciousness accompanied the receipt of the injury. The child rose to her feet and walked home (a few feet). She cried for a few minutes, but was put to bed and soon calmed down. At this time the patient complained of headache and slight dizziness.

The writer saw the patient about five hours after the injury. Examination revealed a rather extensive contusion over the right frontal region. The child had vomited several times, but beyond this showed no signs of brain irritation. The mother thought the child was slightly stupid, but there was no distinct lessening of mental capacity. The right eyeball was slightly turned toward the nose, suggesting involvement of the abducens nerve. However, the mother informed the writer that this condition was congenital. This is mentioned with the view of enjoining caution upon the observer in the interpretation of signs which may be accounted for on grounds other than obtain in connection with the immediate problem.

There were no signs nor symptoms beyond the contusion mentioned and the vomiting. There was no conjunctival, nasal, nor aural bleeding and no ecchymoses over either the mastoid or occipital regions. The patient did not present a distinct picture of shock. There was a slight pallor and the pulse was accelerated (160), but the ensemble did not suggest shock, and the temperature in the rectum was 99.2° F.

During the night the vomiting continued at intervals of about twenty minutes. The vomitus was at first yellowish in color and later became clear fluid. During this time the child was restless, but showed no disturbance of consciousness, the condition being more one of alert sleeplessness.

Saline solution, peptonized milk and small doses of brandy were administered per rectum for the next twenty-four hours. The vomiting persisted, however, and at the end of another twelve hours, small dark brown shreds appeared in the ejecta. At this time the patient's face became drawn and pinched and the pulse became more rapid and feeble in character. There was some fullness in the upper middle abdomen and considerable respiratory distress. Gastric siphonage resulted in the withdrawal of a large quantity of typical "black vomit," though only moderate lavage resulted in the return of clear fluid. Following this the case made an uninterrupted recovery.

It would seem fair to assume that the oozing of blood from the gastric mucosa had ceased at the time of the lavage, and the child was suffering from absorption of the exuded material. Also it would appear that the gastric dilatation was the outcome of the cerebral trauma, a restitution to the normal was *en route*, and complete recovery depended upon removal of the offending material from the stomach.

Trauma of the cranial contents produces changes which may be properly classified, as obtains with other parts, organs, and tissues of the body. A shaking up of any part of the body would seem to produce modification of function without the presence of anatomical change. Concussion of the biceps muscle is not mentioned in the literature, yet the conception of its occurrence is not an idle fancy. Contusion, laceration, etc., of the biceps muscle is readily conceived.

Injury to the brain is distinctive in this regard only, inasmuch as comparatively slight trauma may produce dire results. Concussion of the brain pure and simple must occur, but just how many of these cases are attended with punctate hemorrhages in the cerebral tissue, be they ever so slight, it is of course impossible to say. This is equally true of the biceps muscle.

Applied to the consequential association indicated above, one may say that the effect of trauma is quite the same in all portions of the body, being modified as regards importance by the part involved, and that slight trauma unattended with anatomical changes is important in those portions of the body where modification of function produces shock. Of these the brain would seem to be the one in which the most complex symptomatology obtains.

Bryant, of New York, taught that concussion of the brain was "shock with cerebral symptoms added." Reviewing the classic symptomatology of the two conditions as stated in the literature, this would seem to be true. It is a fact commonly observed that acute postoperative dilatation of the stomach most frequently occurs following operative effort which is accompanied by great trauma. By this the writer wishes to distinguish the effect of the protracted manipulation of tissues during an operation, in contradistinction to one attended with great loss of blood; that is a hysterectomy during which there is much trauma to the parts, is more likely to be followed by an acute dilatation of the stomach than a traumatic amputation of a limb or the removal of a vascular growth, both of which are attended with considerable loss of blood. This has been frequently observed by the writer, and while the explanation may not be susceptible of convincing proof, it would seem probable that when hemorrhage is the cause of shock, there is a gradual accommodation to conditions on the part of the nerve centres and paralysis of the innervation of the stomach does not occur.

The case here reported and the accompanying comments are offered with the view of provoking expression from others as to the propriety of associating the two conditions making the text of this effort.

EUCLID HALL.

THE PARATHYROID AND TETANY.*

BY EDWARD L. HANES, M. D.,
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Before discussing directly the influence of the parathyroids in tetany, it may be well to recall briefly what we understand by the term, *tetany*; something as to the frequency of its occurrence, and to refer somewhat to the evolution of our knowledge of the condition.

Jelliffe, writing in Osler's *Modern Medicine*, states that "it is highly probable that tetany must be regarded as an example of hyperfunctioning of certain parts of the motor mechanism in which altered muscular excitability is primary, while special neurological features play a secondary role, and yet these latter give to the muscular manifestations their special trend. Here particular attention is paid to the etiological factor, since the clinical manifestations alone are not always sufficient to distinguish the form of toxin present." Frankl-Hochwart, speaking of the clinical manifestations of tetany, draws attention to the principal features of this reaction most concisely when he states that:

Tetany has as its main symptoms tonic, intermittent, bilateral, often painful cramps, which, without, for the most part, any loss of consciousness, involve the muscles of the upper extremities, particularly the hand, which is held in the obstetric position. The muscles of the lower extremities may also be involved, those of the larynx, of the face, and of the jaw, seldom those of the chest, abdomen, neck, diaphragm or tongue. In rare cases the eyeball muscles are implicated, as is also the bladder. In the sensory sphere paresthesia and pains are present, while hyperesthesia occurs now and then. Pressure upon the brachial plexus may give rise to an attack (Trousseau); hyperexcitability to electrical currents is present (Erb); mechanical hyperexcitability of the muscles and motor nerves is observed (Chvostek), while the sensory hyperactivity to mechanical and electrical stimuli is also present (Hoffman). The psyche is usually uninvolved, mental disturbance being found only now and then. In the chronic and repeating forms secretory and trophic disturbances occur, such as increased perspiration, reddening of the skin, swellings of the joints, mild edema, falling out of the hair and nails, discoloration of the skin, urticaria, and herpes. Dyspnea may supervene; polyuria and glycosuria are rare accompanying features.

Tetany is comparatively a rare condition in this and many other countries, up to 1907 only 154 cases having been reported in America. Frazier, as a result of personal inquiry among fifty-four surgeons, representing from 1,500 to 2,000 goitre operations, was able to report eight cases, while Mayo and McGrath report as a result of their large experience, that "in 3,203 operations on the thyroid gland in St. Mary's Hospital up to December 1, 1911, but one case is known by us to have manifested signs suggestive of tetany." Kocher, in Switzerland, reports that in his last 1,000 goitre operations, tetany has been observed only five times. Frankl-Hochwart, commenting on the prevalence of the reaction in Vienna and Heidelberg, and in the urban centres of population of Germany and Austria, contrasted with the rural districts of those countries, also refers to its rarity in certain cities, for example, Paris, and in certain countries, viz., France, Italy, Scandinavia, America, and Japan. That failure to report instances of tetany in these localities and countries was

not due to lack of competent observers may be understood when it is appreciated that so eminent a master of clinical medicine as Charcot himself had stated to Frankl-Hochwart, in 1891, that aside from a few cases seen in his early practice, subsequent to 1860 he had observed none; and the latter writer adds that inquiries among the older Viennese physicians who had been attached to the hospitals between the years 1860 and 1880 indicated that during this period such diseases were exceedingly uncommon.

The early history of tetany is submerged in the multitude of spasmodic affections generally of ancient medical literature. In 1830, Steinheim gave a partial description of the symptoms of tetany, and in 1852 Corvisart first applied the term *tétanie* to a recognizable symptom complex. It was not till so recently as 1887, however, that our conception of this affection was really clearly comprehended through the masterly descriptions of Frankl-Hochwart, which have been referred to above. Simultaneously with the discovery of the parathyroids by Sandström, in 1880, Weiss, in Billroth's clinic, Vienna, published a description of tetaniform symptoms occurring after extirpation of the thyroid gland. The relationship between thyroidectomy and the symptom complex of tetany was not fully recognized, however, till some ten years later, when the work of Billroth and Kocher in the operative removal of the thyroid began to give emphasis thereto. Gley, writing during the period 1891 to 1897, proved for the first time by experiments on animals that postoperative tetany was due to the removal of the parathyroids and not to thyroidectomy, except as the parathyroids were involved in this operation. Even Gley himself, however, did not recognize the independent anatomical structure of the parathyroids until Kohn, in 1895, demonstrated this fact.

It is impossible in a short article of this sort to mention the names of other than the pioneers in the huge task of experimentally determining and establishing on a firm basis the relationship between the parathyroids and tetany, but thousands of parathyroidectomies on animals by hundreds of workers have demonstrated in the literature the fact that complete removal of the parathyroid glands results invariably in the tetany reaction, and this work forms a worthy chapter in the history of scientific medical progress.

It may be of interest to review for a moment some of the observations of Frankl-Hochwart, whose general conclusions relative to tetany have obtained till very recently and some of which still constitute problems for solution, in my opinion, notwithstanding the light shed by studies on the parathyroids. This writer classified tetany according to its occurrence, as follows:

1. *Tetany in healthy young working men.* This is most apt to appear at certain seasons and in certain cities (of Europe). It attacks young men chiefly and preponderates in certain trades (cobblers and tailors).

Recalling what has been said above concerning the rarity of the affection in America, it is astonishing to note in this author's discussion under this heading, that the admission records of the Vienna General Hospital showed a total of 368 cases, occurring largely during the winter and spring months.

*Read before the Rochester Academy of Medicine, February 10, 1915.

He states, also, that certain years bring many cases; others but a few. Among 399 men affected with tetany 174 were cobblers and ninety-five were tailors: whereas the cobblers formed but 1.3 per cent. of the whole population of the city, this body of workers furnished 43.6 per cent. of the cases of tetany admitted to the hospital. He further commented on the fact that certain occupations showed almost no cases of this disease, masons furnishing but two instances and factory workers one: again, that the upper classes did not exhibit the disease. Eighty-three per cent. of the patients were between the ages of sixteen and twenty-five years. He believed, therefore, on the basis of this study, that the epidemic and endemic nature of the affection was fully proved.

2. In Group 2 he includes *tetany in gastrointestinal affections*, in which the hypotheses of Kussmaul, Fleiner, and Albu are referred to: that in these cases the predisposition to spasm is caused, not only by autointoxication and hyponutrition, but chiefly by a great loss of fluid which the organism sustains in consequence of processes generated in the stomach.

3. *Tetany in acute infectious diseases* (enteric fever, influenza, angina tonsillaris, etc.).

4. The rare cases of *tetany caused by poisoning by certain substances* (chloroform, morphine, ergotin, and lead).

5. *Tetany of the puerperium* (during pregnancy, labor, and lactation).

6. *Tetany following loss or absence of the parathyroid glands.*

7. *Tetany in connection with other nervous diseases* (exophthalmic goitre, brain tumors, syringomyelia, etc.).

In all these groups Frankl-Hochwart appears to regard the factors mentioned as insufficient for the production of the tetany reaction, and he frequently speaks of some unknown agent whose nature was not understood as being undoubtedly at the basis of the affection.

From the medical side the parathyroids were not definitely implicated till Jeandelize, in 1892, advanced the theory that the cause of tetany in adults was a loss of parathyroid function. Shortly after, Chvostek, accepting this theory, asserted that for all types of tetany only one cause could be considered, viz., functional diseases of the parathyroid glands, and he maintained that such diseases were brought about by disturbances of the circulation in these organs. Chvostek also advanced the thought that a special poison capable of producing the tetanic reaction might be brought about in a susceptible individual by an injury which, in another person, would not give rise to tetany; and that this susceptibility might be congenital or acquired.

In the tetany of childhood there has been much pro and con discussion as to the influence of the parathyroids, many observers having found hemorrhagic lesions of these organs as a result of intra-uterine asphyxiation and traumata to the infant at birth. Escherich goes so far as to assert that the parathyroid theory of tetany explains in a very positive manner the enormous frequency of tetany in the earliest period of life, and further, that it is not necessary to demonstrate anatomical changes in the

parathyroids in all instances, for a functional deficiency may easily occur without histological changes being demonstrable. Yanasse examined the parathyroids in eighty-nine children showing tetanoid conditions, and found hemorrhages in these glands in thirty-three cases. He points out that changes in these organs grow progressively less capable of demonstration with the lapse of time following birth, and that after the fifth year one cannot say from histological study that a hemorrhage had never occurred. His conclusion was that between parathyroid hemorrhage and tetany there is doubtless a connection, and he explains such connection by the theory that the parathyroids are poison destroying organs whose principal function most probably is to neutralize metabolic poisons which are detrimental to the nervous system: therefore, we must recognize in metabolism the origin of the so called poison; in the nerves the principal tissue attacked by it, and in the parathyroids the organs that neutralize this poison. Hemorrhage in these glands need not totally destroy them, but might so far damage them as to preclude a normal functioning capacity.

Mayo and McGrath, in their article referred to above, assert that "recent writers, basing their conclusions on experimental, clinical and pathologico-anatomical investigations, believe the principal factor in the production of tetany to be an insufficiency of the parathyroids." This insufficiency may be either absolute, as in postoperative tetany when the glands have been removed, or relative, in which case the parathyroids are hypoplastic, consequently disposed to tetany, and hypofunction is precipitated by a contributing factor, for example, gastrointestinal disease. Accordingly injury to the parathyroids is to be regarded as disposing to tetany, while the releasing factor, whose nature still remains obscure, is undoubtedly of a very varying kind (infection, pregnancy, etc.). In 1909, MacCallum and Voegtlin published the results of their studies on the metabolism in parathyroidectomized animals, with the following conclusion:

In tetany there is apparently some disturbance of the composition of the circulating fluids ordinarily prevented by the secretion of the parathyroids, which disarranges the balance of the mineral constituents of the tissues. Possibly this consists in the appearance of an injurious substance of an acid nature, for such tetanias may be relieved by extensive bleeding, with replacing of the blood by salt solution. Numerous researches have shown the important relation of the calcium salts to the excitability of the nervous tissues. Their withdrawal leaves the nerve cells in a state of hyperexcitability which can be made to disappear by supplying them with a solution of a calcium salt. Tetany may be regarded as an expression of the hyperexcitability of the nerve cells from such cause. . . . Studies on the metabolism in parathyroidectomized animals show (a) a marked reduction in the calcium content of the tissues of the blood and brain during tetany and (b) an increased output of calcium in the urine and feces on the development of tetany. . . . In general, the role of the calcium salts in connection with tetany may be conceived as follows: These salts have a moderating influence on the nerve cells. The parathyroid secretion in some way controls the calcium exchange of the body. It may be supposed that in the absence of the parathyroid secretion, substances arise which can combine with calcium, abstract it from the tissues, and cause its excretion, and that the parathyroid secretion prevents the appearance of such bodies.

The importance of this work can hardly be overestimated if we are to understand the basic factors

in the production of the tetanic reaction, and at once apparently substantiates and coincidentally appears to clear up some of the problems brought forward in Frankl-Hochwart's classification under Group 5, relative to *tetany of the puerperium*. It also has a similar import in the tetanies of rickets and osteomalacia. MacCallum maintains that in pregnancy and lactation the drain of calcium in the production of the fetus or on the secretion of milk may be so great as to cause tetany without actual lesion of the parathyroids. If, however, the functioning power of these organs is impaired, by just so much is the calcium content of the tissues diminished and tetany the more liable to express itself. In the malnutritional states of rhachitis and osteomalacia, as is well known, there is obviously some profound disturbance of the calcium metabolism, and it has been shown by many observers in the literature of the parathyroids that these glands have important nutritional functions in the economy quite apart from the problem which concerns us at this time.

Summing up the present analysis of the literature of the parathyroids and tetany, therefore, it may be said that their relationship is most intimate, and that it has been conclusively shown in large numbers of instances that the tetanies of childhood and of the puerperium, those of certain nutritional diseases, and following operative removal of the parathyroid glands are unquestionably due to the loss of or interference with the functions of these organs. It is not yet clear, however, in what manner the parathyroids are implicated in the so called epidemic and endemic tetanies of Frankl-Hochwart, or why certain occupations predispose to this reaction in contrast to other allied forms of labor.

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748 MAIN STREET EAST.

BENZOL IN THE TREATMENT OF MYELOGENOUS LEUCEMIA.*

With the Report of a Case.

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To the physician who has had any experience with the leucemias, the diagnosis has the solemnity of a death sentence with no hope of pardon. Since 1912, however, when Koranyi published his cases of leucemia treated by benzol, there have been many cases reported in which this drug was administered with varying results, but a sufficient number have reached a normal blood picture to inspire some hope.

Most investigators agree that benzol is a powerful drug, whose action is not thoroughly understood; as Billings puts it, it is a two edged sword, that must be used carefully. Albuminuria or nephritis is a contraindication to its use; the patient should be in

a hospital and carefully watched. The conservative dose is from seven to fifteen drops three times a day. Klein's observations justify him in advocating that a course of Röntgen exposures precede the course in benzol. Following is a preliminary report of a case still under treatment:

CASE. C. H. C., aged thirty-four years, married, police sergeant; family history and previous medical history negative. Had not been feeling well for two and a half years, just felt tired and weak. Weight, thirty months ago, 175 pounds. Present weight 152 pounds. Skin a peculiar brownish color, especially marked upon his face and hands. Chest and extremities normal. Spleen extended nine cm. to the right of the umbilicus and down to the crest of the ilium. Hemoglobin sixty-five per cent. Dare. Red cells, not counted, white, 260,000.

Differential count as follows: Polynuclears, 40.8 per cent.; lymphocytes, 19.2 per cent.; eosinophiles, four per cent.; mast cells, 12.6 per cent.; myelocytes, 22.8 per cent.; three normoblasts. Marked distortion and irregular staining of the red cells. Urine free from albumin and casts.

From the time I first saw him, June 22, 1914, until September 7, 1914, he was given Röntgen radiation according to the method of Pancoast. Blood examination, July 11, 1914, showed 3,000,000 red cells, 290,000 whites, hemoglobin 58 per cent., and 28.5 per cent. of myelocytes. Patient was sure he was weaker, and having heard of arsenic for his condition, requested that it be administered; he was started on three drops of Fowler's solution three times daily, increasing one drop a day. By the tenth day of arsenical medication, he had edema of the extremities and his urine showed a heavy cloud of albumin and hyaline and granular casts; arsenic stopped, Röntgen radiation continued.

Patient entered hospital September 7, 1914, feeling very weak; nephritis unimproved, and with the following blood findings: Hemoglobin, 40 per cent.; red cells, 3,190,000; white, 272,000; differential approximating previous findings. X ray treatment was stopped and three drops of benzol administered by mouth in capsule, three times a day after eating. Evidences of nephritis in urine examination rapidly increased, so benzol was stopped, September 10, 1914. Nephritis was no better by September 23d, so considered it due to his anemia and started the benzol, one drop, increasing one drop a day. By October 11, 1914, albumin a faint trace, no casts. Hemoglobin 44 per cent. White cells 520,000, 41 per cent. being myelocytes. Red cells slightly increased in numbers. Benzol was rapidly increased from this date and by October 25, 1914, patient was getting 35 drops three times a day and had the following blood findings: Hemoglobin, 49 per cent.; reds, 3,820,000; whites, 274,000, with only seventeen per cent. of myelocytes. Patient felt much better and weighed 160 pounds.

From this time on there were daily fluctuations in the blood picture, the reds and hemoglobin steadily increasing, whites growing less, urine remaining normal. If the benzol was reduced to ten or fifteen drops at a dose for a few days the whites rapidly increased in numbers, so the dose was left at thirty-five drops thrice daily, until January 14, 1915, when he had eighty-five per cent. of hemoglobin, red cells 4,800,000, whites 8,600 and no myelocytes could be found; there remained, however, three per cent. of mast cells.

The discoloration of his skin has entirely disappeared, his spleen cannot be palpated, he weighs 180 pounds, and says he never felt better in his life. I intend to continue his present dose of ten drops of benzol for some time and watch his blood picture closely, again reporting his condition six months or a year from now.

I am well aware that one case does not give sufficient data by which to judge treatment, but I wish to call attention to the clearing up of his nephritis and to the lack of digestive disturbances with larger doses than are usually advised.

*Read at the March meeting, Section in General Medicine, College of Physicians, Philadelphia.

HEMADENOLOGY:* A NEW SPECIALTY.

THE INTERNAL SECRETIONS—THEIR FUNCTIONS AND BEARING ON DISEASE AND THERAPEUTICS.

BY CHARLES E. DE M. SAJOUS, M. D., LL. D., Sc. D.,
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(Tenth Communication.)

THE THYMUS (Continued).

In our preceding communication (NEW YORK MEDICAL JOURNAL, June 12, 1915) the pathogenesis of Mongolian idiocy was reviewed, the predominant role of the thymus in this disease and the participation of the thyroid and adrenals in the process being emphasized. I urged as a cardinal feature of the process a deficiency of the nucleins supplied to the brain through lymphocytes. The thyroid secretion was identified as the sensitizer of the phosphorus contained in the nucleins, the adrenal secretion (converted in the lungs into adrenoxidase) acting as oxidizing agent. The present article will be devoted to the form of idiocy which, as is the case with Mongolian idiocy and cretinism, does not present characteristic lesions of the ductless glands as cardinal features—but which nevertheless probably owes its origin to deficient activity of these organs—the thymus in particular—in most instances, either through heredity or postnatal morbid processes.

A feature in this connection upon which stress must be laid is that idiocy is a secondary manifestation of impaired metabolism or "nutrition," as it is often termed, due to defective ductless gland activity, whenever these glands are at all concerned in the morbid process. The recognition of this feature of pathogenesis is of special significance for two reasons: 1. It indicates the importance of *early* recognition of whatever form of idiocy is present, i. e., at a time when the morbid process is still within the reach of effective therapeutics. 2. It enables us, when profound organic changes have occurred in the brain and the system at large, to identify their true nature and direct our therapeutic efforts to the best advantage of the child. Indeed, we should never lose sight of the teaching of one of the most illustrious and successful scholars in this line of work, Jules Morel, of Ghent, Belgium, that *individualization should be our watchword*.

Assuming then that our starting point is some disorder of the ductless glands, with denutrition of the cerebral tissues as main pathogenic factor, we can understand why it was that the writers of the eighteenth century spoke, as did Meckel, of idiocy as being due to dryness and hardness of the cerebral substance, or, as did Malacarne, who taught that the "lamellæ" of the cerebellum increased or diminished according to the development of the intelligence; or as did Esquirol, that in such subjects the convolutions are small, atrophied, compact, and that the lateral ventricles are of small capacity. The landmarks of deficient nutrition are evident in these brief morphological observations; they are as applicable today as they were nearly two centuries ago. We have seen, for example, in our preceding

communication, that Mongolians show an average reduction of the skull circumference of one and one third inch, some reaching as low as two and one half inches. Obviously there is arrested or defective development. If, bearing in mind the influence of the ductless glands in the process, we follow the downward scale to anencephaly, in which the brain is virtually absent, a snap diagnosis of absence of the adrenals would prove true at the autopsy in practically every instance.

The nineteenth century was prolific in efforts to classify the various forms of idiocy with clinical phenomena and pathological anatomy as basis. Doubtless the best of these for practical purposes was that of Bourneville, based on twenty-five years' study of the subject at the Bicêtre and Salpêtrière hospitals of Paris. It is especially advantageous for the feature upon which we wish to lay stress, viz., the presence of *inflammatory lesions* of the brain and meninges in some forms of idiocy; *arrested development* in other forms, and in a third series *localized organic lesions*, sclerosis, etc. Bourneville's classification may be summarized as follows:

1. Idiocy due to chronic meningitis (meningitic idiocy).
2. Idiocy due to chronic meningoencephalitis (meningoencephalitic idiocy).
3. Idiocy due to arrested development of the convolutions without malformations, with lesions of the nerve cells (congenital idiopathic idiocy).
4. Idiocy due to hypertrophic or tuberous sclerosis.
5. Idiocy due to atrophic sclerosis, (a) sclerosis of a hemisphere or of both hemispheres of the brain (hemispheric or dihemispheric sclerosis); (b) sclerosis of a lobe of the brain (lobar sclerosis); (c) sclerosis of separate convolutions; (d) shagreenlike sclerosis of the brain.
6. Hemiplegic or diplegic idiocy, due to focal lesions from vascular obliteration or hemorrhage (pseudoporencephaly, etc.).
7. Idiocy due to simple ventricular hydrocephalus or complicated by extraventricular hydrocephalus (hydrocephalic idiocy).
8. Idiocy with pachydermic cachexia or myxedematous idiocy associated with absence of the thyroid gland.
9. Idiocy due to arrested development of the brain with congenital malformations (true porencephaly), absence of corpus callosum, etc.
10. Idiocy due to microcephaly from arrest of development with or without malformations, or having for cause lesions occurring after birth (microcephalic idiocy properly so called or symptomatic).

We miss the cases attributed formerly to premature synostosis and for which craniectomy was performed uselessly in many cases, but Bourneville had never seen a case of idiocy that could be referred exclusively to an osseous lesion, and found no ground, physiological or anatomical, for resorting to this operation. Time has sustained him in this as well as in other particulars. Briefly, surgery is of no avail in these cases. *It is only by identifying carefully the character of the lesions present in the brain by the symptomatology of each case that we can determine intelligently the line of treatment to be adopted.*

Before we can further analyze this phase of the

* Hemadenology, from the Greek: αἷμα, blood, ἄδην, gland, λόγος, discourse, meaning thereby (as do ophthalmology, laryngology, and other terms applied to specialties) the aggregate of our knowledge on the ductless or blood glands.

question, however, the nature of the morbid processes *per se* requires careful attention, particularly as to the meaning of "arrested development" and illustrating Nature's resources—when aided by the physician—to resume nutrition and activity.

As long ago emphasized by Mierzejewski, the basis of anatomical lesions in the brains of idiots is

quently show abnormal aptitudes in certain directions, music, arithmetic, extraordinary memory, etc., which render such "freaks" acquisitions for showmen.

The examination of brains of idiots proves that an abundance of gray matter and of nerve cells may be accompanied by idiocy, but in such cases the system of connections between the convolutions is arrested in its development, and this want of paths of communication, and the lack of harmony of development in the different nervous elements, render the organ imperfect. In the central nervous system, everything depends, not on the quantity, but on the quality of the elements, and their combinations with each other. The richness of the layer of neuroblasts in the hemispheres of idiots, which indicates true arrest of development of certain parts of the cerebral tissue, undoubtedly produces insufficiency of function of the nervous system and of the manifestations of the intellect. In favorable conditions of nutrition, however, *neuroblasts may become transformed into elements of a superior order, that is to say, nerve cells.* In the layer of neuroblasts there are sometimes found polymorphic cells. Thus the neuroblasts, which for a certain time preserve their embryonic forms, and which are in a state of functional lethargy, may, under the influence of a propitious impulse, become transformed into nerve cells and help to reinforce the activity of the cerebral functions. It is perhaps in this way that are to be explained the cases of profound and apparently hopeless idiocy in which there

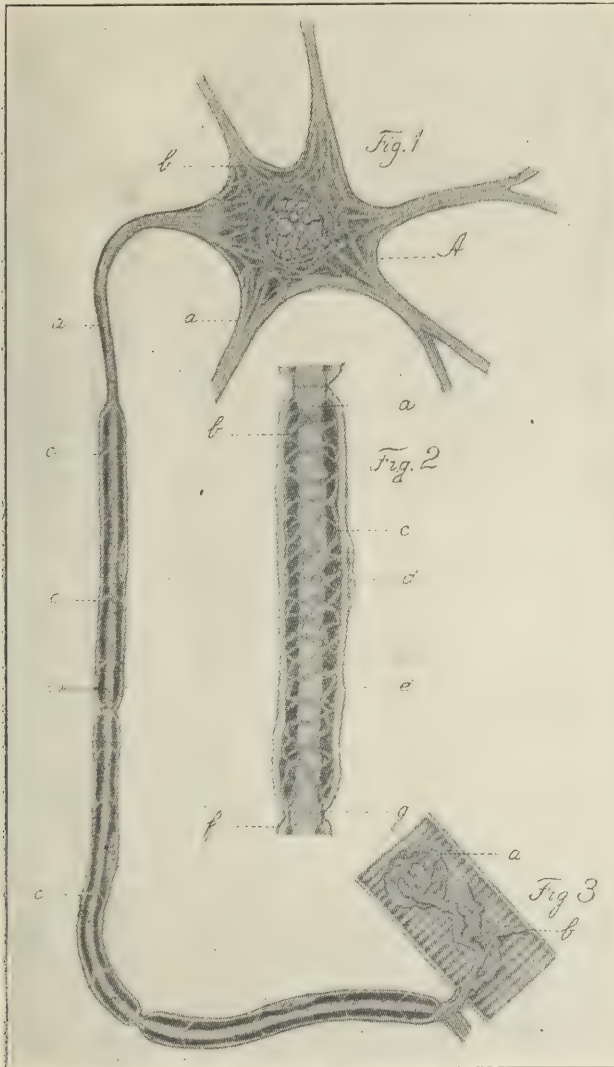


FIG. 1.—The neuron as an organ (Sajous). 1, Cell body or chief cell. A, a, fibrils as capillaries for adrenoxidase plasma; b, Nissl granules, as nucleoprotein microsomes. 2, True nerve cell. a, axis cylinder fibrils as capillaries for adrenoxidase plasma; b, network for distribution of plasma throughout myelin; c, slits of Lautermann; d, cell nucleus and nucleolus; e, neurilemma; f, tip of next cell; g, Ranvier's node. Dark background myelin. 3, Muscular tissue. a, motor ending; b, terminals of fibrils of axis cylinder, in which adrenoxidase plasma (and tetanotoxin) flow upward or centripetally.

an inhibition of development of the nervous tissues; its origin must be sought for either in embryonic life or in pathological lesions produced in infancy, which are the starting point of future anomalies of development. There is no true arrest of development, in a morphological and histological respect, affecting the brain as a whole judging from the average post mortem evidence, but there is a true arrest of development of *certain regions* of the brain tissue which may be recognized by the presence of neuroblasts. Some regions, in fact, seem to compensate for these defective areas, for idiots fre-

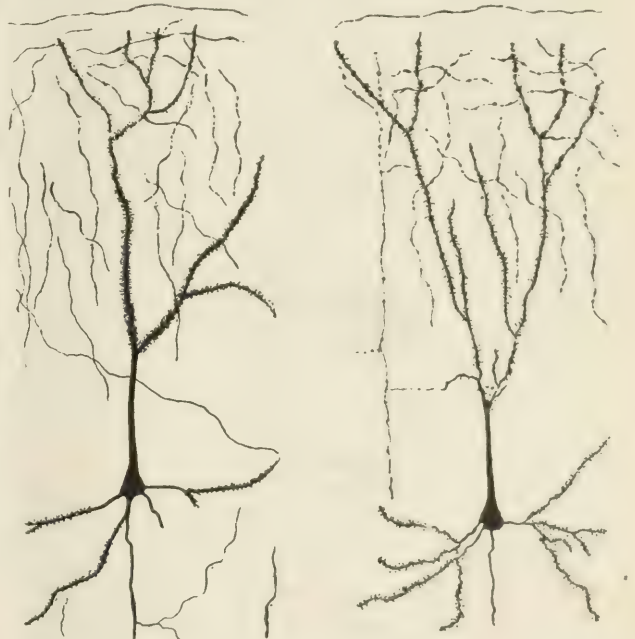


FIG. 2.—Brain cells of a marmot, 1, while awake; 2, while asleep (Querton). Shows neuron dilated by adrenoxidase-laden plasma in 1, and the same cell depleted of plasma during sleep in 2 (Sajous).

sometimes occurs a marked improvement of the intellectual faculties. The idiot seems to awake from a long sleep, while nevertheless retaining permanently the stamp of his mental infirmity; though in a less marked degree. *It is this process of repair which organotherapy tends to promote.*

What is the nature of the curative process? To answer this question, a brief survey of the phys-

iology of the nerve cell is necessary—but of the nerve cell as I understand it.

Referring the reader to other writings, and particularly to the study of the nerve cell in the fifteenth chapter of my work on the *Internal Secretions* (p. 946) for details, histological, biochemical, and physiological, I will merely recall that from my viewpoint, the nerve cell or neuron should be looked upon as an organ, precisely as a gland is an organ, supplied in the same way as are all other organs with blood, nucleins, ferments, etc. But it is not what we usually call "arterial" or "red" blood that courses in the neuron, from my viewpoint; as is the case with the cellular elements proper of all other tissues, it is the albuminous constituent of the hemoglobin dissolved in a whitish transparent fluid. This white fluid is blood plasma, but plasma containing a substance which gives the reactions of adrenoxidase (the adrenal secretion converted into an oxidizing substance on passing through the lungs)—the same which the red corpuscles carry to all tissues. The presence of the adrenal principle in the red corpuscles as well as in the nerve cell, which I pointed out in 1903, has been confirmed by others.

How does adrenoxidase circulate in the neuron? This is shown in the first of the annexed illustrations. All clinicians know that tetanotoxin and other poisons pass upward in the fibrils forming the axis cylinder, the central channel, of the neuron. This tetanotoxin, from my viewpoint, merely enters these channels with the adrenoxidase-laden plasma. In other words, it flows, mixed with blood plasma, up the whole length of the nerve up to the cell body or chief cell (Fig. I, 1).

Under normal conditions, however, this adrenoxidase-laden plasma, as it courses upward in the axis cylinder, is in part distributed, at intervals to the body substance of the cell, through the slits of Lautermann (Fig. 1; c. c. in 1 and c in 2), and to the network of canals shown in the central figure. The nature of the cellular body—the dark background behind the network—into which the adrenoxidase-laden plasma flows via this network, is suggestive; it is a phosphorized fat, *myelin rich in nucleoproteid similar to the nucleins* (a convenient word for nucleoproteid) *supplied by the thymus to all tissues, and which we have seen are carried thereto, and particularly to the nervous system and bones, by lymphocytes.*

Leaving out of consideration many other relevant features of the biochemistry of the nerve cell, its functional mechanism, etc., I will merely submit the purpose of the biochemical relationship between the myelin and adrenoxidase: The myelin, from my viewpoint, is the cytoplasm or fundamental substance, as it were, of the nerve cell; *the adrenoxidase by acting on this myelin incites and sustains its functional activity.* This explains why a *weakened thymus, by failing to furnish to the cerebral neurons an adequate supply of nucleins during the development of the brain, prevents its growth as the organ of mind.* Hence the fact that idiocy has been found to coincide in the great majority of cases with absence of the thymus at autopsies, while complete thymectomy in young animals has been shown to produce idiocy.

The biochemistry of sleep affords a clue to the nature of the process of repair. The second of our illustrations shows two neurons from the brains of two animals killed by section through the head, one while asleep, the other while awake, both brain segments being dropped instantly in a staining solution. The "awake" cell is shown to be filled with (from my viewpoint) adrenoxidase-laden plasma, and, therefore, *fully active*; the "asleep" cell shows depletion, the symbol of *inactivity*. Now, if in the idiotic child, before organic lesions have occurred to thwart our efforts as regards complete cure, *we supply, by means of thymus gland, or other nuclein-laden agents, and also thyroid to sensitize the phosphorus they contain, and finally adrenal gland to increase oxidation of the phosphorus, those dynamic agents the neuron requires*—as far as we can see in the very infancy of this new line of thought—to resume its functional efficiency, and also what the neuroblast requires in order to become a neuron, we invade at least the field of rational therapeutics.

What can we legitimately hope to do to prevent idiocy, to arrest its development in its earlier stages, or to improve the condition of the unfortunates who have reached the advanced stages of the disease in the light of these views? We shall attempt to answer these questions in our next communication.

(To be continued.)

Therapeutic Notes.

Treatment of Condyloma acuminatum.—N. P. Vouliérís, in *Grèce médicale* for December 15, 1914, reports good results with carbon dioxide snow in the treatment of condyloma. In ten patients a single application of ten seconds' duration was uniformly successful in causing condyloma to shrivel in a few hours and be thrown off in two days, without ulceration or discomfort save slight local formication lasting a few seconds only. In six instances the hard bony base of condyloma was softened by the single application of the snow. In the four others, a second application was made, which removed the hardness, without causing ulceration, in a couple of days.

Vaccine Therapy in Gaseous Gangrene.—Weinberg (*Presse médicale*, December 31, 1914) reports results obtained in gaseous gangrene with a polyvalent vaccine prepared from four strains of *Bacillus perfringens* isolated in fatal cases. This treatment is based on the recent view that gaseous gangrene is due to fusiform and spirillar organisms. Daily injections of small doses of the vaccine were begun on the same day or shortly after the wounds were opened and dressed. Rapid subsidence of fever and marked general improvement were procured. Though the ability of the vaccine to cure gaseous infection completely could not be definitely asserted by reason of the short time it had been in use, it seemed powerfully to assist the organism in combating the infection. The vaccine cannot, of course, be expected to yield good results in cases in which the gangrenous process runs an especially rapid course.

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THE STATE CONSTITUTIONAL CONVEN- TION AND THE PROBLEM OF MENTAL DEFICIENCY.

The problem of mental deficiency, so frequently discussed, must again be taken up in this State at the present time while the constitutional convention is still in session. At this juncture the social, economic, and educational phases of the problem may well be disregarded; thought should be concentrated on the broad administrative and legal aspects of an adequate and comprehensive policy. We have been handicapped, first, by a lack of institutions for the care of the feeble-minded; second, by a lack of concentrated control over them; and, third, by a lack of legal provisions for their detention.

It will take time before the State appropriates enough money to accommodate all the feeble-minded that should be segregated in institutions. The opportunity, however, should not be missed at the present time to amend the State constitution in such a way as to create a special board which will have sole control over this class of people similar to the control the board of insanity has over the psychopaths. It has been pointed out on many an occasion that this board should be entirely separate from the board of charities, as not all of the inmates of the institutions necessarily come within the indigent groups.

Here we come to the third vital phase which should be dealt with by the constitutional convention, namely, giving power to the board to commit to institutions people who are mentally unfit to be in the community at large. Until we have such a law it will be impossible to deal with the problem in an effective social way. An interesting suggestion has recently been made, that institutions for the feeble-minded should not attempt to take children, as the social danger from feeble-minded children is small in comparison with their antisocial possibilities when they reach the age of puberty; but this is a matter of administrative detail, which could be met later on. For the time being, efforts should be concentrated on influencing the State convention to write into the constitution two provisions, the first creating a board of control for the feeble-minded, and the second giving the board power to commit for life.

THE TRANSMISSION OF TYPHUS FEVER.

The debate among German surgeons on the transmission of typhus fever should attract public attention in this country. It is quite possible that we may have to fight the louse, the importer of the virus of typhus, and we fear that in the noise and press of a time when all literature except headlines is in danger of neglect, a series of reports of great importance to physicians and experts on hygiene is likely to be passed over entirely. It is somewhat surprising to read that the opinions of surgeons who have studied typhus in Galicia and Servia differ in some details. The *Medizinische Klinik*, which has published their reports, has now completed the series on which it has been employed for months. Gaertner believes the body louse to be the agent; it is unlikely that flies and bedbugs carry the virus. Fresh blood, on the other hand, is perhaps contagious. Bujwid, who has seen many epidemics, regards the breath and coughing as modes of contagion. The body louse, writes Kisskalt, is the most frequent cause; according to Uhlenhuth it is really the sole cause. This, Flügge states, is proved by exact experiments and observations. Singer rejects the dogma that the body louse is the sole carrier of contagion. Similarly, in *Amtsartz*, 6, 1914, Bory, who saw numerous cases during the Servian and Galician campaigns, states that the fly is sometimes the host of the typhus germ. This view is no doubt reasonable. The Austrian surgeon, Kaiser, believes that there are still other ways of contagion. His statement is worth study; it is based, not on loose reasoning, but on a vast experience. Singer asks, Where are we to find real proof of the assertion that the body louse is the solitary host of the disease? There is none. As a matter of fact, there is evidence

produced by French writers to show that the head louse is a carrier of the contagion.

In offering these remarks our object is not to cry down one theory or to cry up another. We only wish to warn people against well founded but not demonstrated statements about the body louse; it is not proved that there are not other lice and vermin that carry typhus. What is there in the former view to secure us from error if a very grave epidemic has suddenly to be fought? After the present war we run a decided risk of such an epidemic. Our health services are now efficient, but there is no evidence that we could prevent outbreaks of typhus fever if immigration was what it used to be, and may be again. The Germans have established in the field rules and apparatus which, they tell us, are effectual in avoiding typhus. Soldiers are bathed and their clothes are steamed at 100° C. Flügge has invented special suits for nurses and surgeons, so made that lice cannot get through the cloth or the collar; and the result has been a notable service to the hospitals. That the Germans are speeding up all these precautions is disquieting. The spread of typhus is a serious possibility, and we must not be unable to complete the great task of clearing this country of an epidemic should it arise.

ROYALTY ON THE SICK LIST.

The bed of royalty is at best but a thorny couch, and "the head that wears a crown" lies no easier, as the world well knows, than that which carries a basket of bananas. The physical aspirations of kings can soar to no greater heights than those of their subjects. Poets delight to tell how death and disease beat with equal force at the doors of the cottage and the palace. Just at this time it would seem that the rulers of Europe are below the average of health which prevails amongst their belligerent subjects. That there is rife in Europe a form of monarchical neurasthenia induced by the great world struggle admits of little doubt. The winter was one of unusual severity and the contending armies suffered greatly from such diseases as pneumonia, rheumatic fever, lumbago, diphtheria, and meningitis. In certain districts a restricted diet has also exercised a certain influence on the well being of the people. But royalty has escaped the rigors of the winter, and it is beyond belief that the crowned heads have suffered in any way from a sparse diet; despite this the fact remains that royalty in Europe is physically below par. The German Emperor is suffering from a severe laryngeal trouble; the President of France has been under medical surveillance, and forbidden to engage in arduous military reviews as was his wont; King

George of England abandoned the use of alcohol as much on the advice of his physician as that of Lloyd George, his doughty social reformer and Chancellor of the Exchequer; Albion's ruler is rheumatic. The survivor of the fallen fortunes of Portugal has become gouty, and spends a great deal of his time taking the waters. Alfonso of Spain is forced to live out of doors on account of being strumous. The young heir to All the Russias, as a result of a Nihilistic attack, is a confirmed invalid; in some quarters it is even hinted that the son of Nicholas was emasculated by a Nihilistic enthusiast. The Czarina is known as "the saddened woman of Europe"—she is decidedly melancholic in temperament. The King of Greece is reported to be fast breaking; he recently suffered from an attack of influenza—this has been followed by pleurisy and a daily rise in temperature. The politically "sick man of Europe," the Turk, seems to be in unusually fine fettle, however, judging from his activities in and about the Dardanelles. Such a sick list affords ample food for the moralist. It will inspire regret in the minds of the loyal subjects of those monarchs. The democrats and socialists, influenced by other feelings, will be tempted to exclaim *O si sic omnes!*

HOW MUCH EXERCISE SHALL WE PRESCRIBE?

Muscular exercise is presumably important as a means to health, but our ideas as to the amount that a patient should take are exceedingly hazy. According to the great majority of "physical trainers," who, however, do not always take their own medicine, the more exercise we take the better, and if this dogma was true, our advice to patients could be brief and definite. Some persons naturally desire exercise and think they feel the better for taking long walks or otherwise taxing their muscles. There are others who find most pleasure in an easy chair and who can with difficulty be persuaded to leave it for a short stroll. Are both these examples right, or does the one carry exercise to an extreme, and the other suffer from muscular negligence?

Perhaps we can learn something on the subject from biography, for biography is physiology and hygiene teaching by example. Beethoven walked or rather ran—for his steps were hurried—five miles or more a day, rain or shine; Brahms also was a "tireless walker"; Thomas Jefferson walked seven miles a day; DeQuincey, a very shadow of a man, felt that he needed to walk fourteen miles a day; Walter Scott easily limped twenty miles, and Turner went the same distance, working as he walked; Dickens did, at a great pace, his twenty-

five miles or more, and Tolstoi at fifty-eight years of age easily walked one hundred and thirty miles in three days.

These were all giants in mind and also in bodily endurance. On the other hand, the genius of Calvin, of Darwin, and of Kant was lodged in tumbling down protoplasmic shacks, and the first was more often found on a couch than on the road, Darwin walked but a short measured distance, and even Kant, who kept himself nicely balanced, "like a walker on a tight rope" in the narrow way of health, limited his stroll to a half hour a day.

The kind and quantity of exercise seems from such examples to depend, as we should expect, on the general health and physique of the person, and perhaps not a little upon his habitual demand and intake of food. The lately published account of the habits of Lord Lyons, who for forty years was one of the most important of British diplomats, gives another aspect, however, to the subject. Here was a robust man who not only "cared nothing for sport, but had probably never played a game in his life, and detested exercise and outdoor life." Though a total abstainer from alcohol, he was a large eater, and he used to say that "abstinence and exercise were the only two things that disagreed with him." He was conscientious and never shirked his work; yet, except for a few months of nervous breakdown following the great stress of affairs at Washington during the Civil War, he was in good health, and so efficient that for over forty years "not the slightest criticism was ever made of his official conduct." He died at seventy years of age of a first stroke of paralysis, only a few months after he resigned his office. Of our great pedestrians, Scott also died of apoplexy, but at sixty-one years, while Dickens was cut off at fifty-eight.

Evidently, while exercise is a good thing, and apparently essential for the health of most people, it may not only be carried to extreme, but there are apparently some persons who are well off and perhaps best off with very little use of their muscles. We cannot say just how much exercise a person should take, and it may be well to consult the habits of the patient to a considerable degree, before giving advice on the subject.

RAT MIGRATION AND PLAGUE.

When it was discovered that bubonic plague appears among rats before human beings are attacked, a great prophylactic step forward was taken. Later it was found that the essential transmitter of the disease was the rat flea, which, on the death of the rodent, would leave it to infect the nearest living

animal. Thus, after having found the carrier and the transmitter of the disease, the medical world was in a much better position to fight the invader. Such a fight, however, against an animal so shrewd and alert was not to be an easy one. As usual the essential measure is that of prevention; the entrance of infected rats into our country should be guarded against. As they can be carried in vessels only, the importance of the antirat campaign is greatest in the large shipping centres.

Unfortunately, the plague has succeeded in entering, undiscovered, certain of our ports, San Francisco and New Orleans, for instance, and the question then arose of destroying the rats and of making the wharves and buildings as ratproof as possible.

In the *Public Health Reports* for June 4th, Creel discusses a phase of the rat question in its relation to plague that has been generally disregarded. It has been believed and taught that the spread of plague by the migration of rats is little more than theory and need not be considered seriously. It is only as recently as September, 1914, that in Havana it was stated in the official bulletin of the Cuban authorities, that the diffusion of plague was due to the transference of infected fleas in merchandise, and the possibility of its being due to rodent migration, except for short distances as from house to house, was excluded.

In order to obtain facts as to the travel of rats in and about a large city, a number of live rats were collected by the use of large cage traps, and, after being carefully marked, were set free. In the first experiment 179 were released. The first rat trapped at any considerable distance from the point of release was a half grown animal taken nineteen blocks away, about one mile. Within two weeks a number of rats were taken at points four miles distant. Subsequently 113 rats were marked and liberated in the wholesale provision warehouse district of the city, the first lot having been set free in the residential portion. The conditions here were much better suited to the habits of the rats, and only eight made any extensive travel, going from one to two miles. It can be appreciated readily that if any of these rats had been in the early stages of plague, foci of the disease might have been scattered at long distances. Inasmuch as the eight rats of the second batch invaded the area of migration of the first lot, the plague might easily have been transmitted from one area to another.

This work of Creel's establishes beyond doubt the possibility of plague being carried considerable distances by rats, and shows more clearly than ever the importance of rat destruction in the campaign against plague.

RESPONSIBILITY WITHOUT REMUNERATION.

To those who consider the medical profession as a whole an overpaid, underworked, luxurious body of men grafting a living from credulous sufferers, imaginary or otherwise, by the assumption of omniscience and a free exhibition of scientific polysyllables, the plea contained herein will excite nothing but opposition. It should appeal, however, to us who know the facts in the case as worthy of consideration. It is that medical men should receive some compensation for the time, trouble, and responsibility involved in furnishing various certificates required by law, as death and birth certificates, reports of contagious diseases, commitments to hospitals for the insane, etc. Sir John Moore recently called attention to the present state of affairs, which he considers a serious professional grievance, in a paper read before the section in State medicine of the Royal Academy of Medicine in Ireland. He refers especially to the lack of compensation for the furnishing of death certificates, although there is a penalty attached to failure in this regard.

We find ourselves in complete agreement with this attitude of Sir John Moore. There is no reason why provision should not be made for some remuneration for such services as these. In reporting a contagious disease, the doctor not only renders a service to the community which is valuable, but in so doing he takes time away from his work; in most cases he pays the postage on the report and makes himself liable to penalties of various kinds should he neglect to comply with certain more or less arbitrary regulations of the local health department.

Then again, when he fills out a death or birth certificate, he contributes that much to the vital statistics of the country, and his scientific training, his regard for details, and other qualifications which he brings to the task contribute to make the document valuable for statistical purposes as well as useful against possible legal complications. Should the physician see a charity patient, for instance, and sign the papers committing him to a hospital for the insane, he incurs a grave moral responsibility and takes his chances of being later brought into court and browbeaten by some attorney hired to get the patient released. Such papers, too, often require a great deal of time to fill out, containing, as they usually do, information as regards heredity, previous habits, onset of trouble, present symptoms, etc.

Let us protest against the exploitation of the physician by the community as a whole, as we should protest against his exploitation by an individual or a firm. Nominal fees for all reports of this kind filled out by a physician during the year would in

the aggregate add quite an appreciable amount to his income. There seems to be no reason why such a desirable state of affairs should not prevail.

AN ANTISEPTIC IODINE SOLUTION.

Dr. H. W. Yemans, First Lieutenant, Medical Reserve Corps, U. S. A., in the *Military Surgeon* for June, 1915, states that he has used the following formula to the exclusion of all others during the past eight years, with better results and greater satisfaction than any other disinfectant has ever given him: Iodine, one gram; potassium iodide, two grams; salicylic acid, five grams; alcohol (seventy per cent.), enough to make 100 grams.

Undiluted, this solution may be made use of for sterilizing the hands and sites of operation, for disinfecting wounds, and for such other purposes as will readily suggest themselves. For wet dressings and for irrigations it should be diluted with water so as to represent an iodine content of from one in 1,000 to one in 5,000; diluted to one in 25,000, it is used for gonorrheal ophthalmia and urethral irrigations, with excellent results, though it is advisable to cocaineize the eye previously.

The solution is not deleterious to instruments; in fact, it may be used for sterilizing them, other means failing. The discoloration which it causes soon disappears, and it is not too irritating when used full strength for sterilizing the hands, provided that they are not previously subjected to what Doctor Yemans calls "that senseless procedure," violent scrubbing. When the solution is used in full strength, the hands should be well dried.

ANTIGAS MASKS FOR SALE IN ENGLAND.

A sign of the times is the appearance in the *Lancet* for June 12, 1915, of a full page advertisement of a mask to guard against the new gas bombs. The manufacturers appeal to civilians to provide themselves with masks in order to be prepared for the long threatened Zeppelin raid on London. They cost two shillings each and twenty ounces of a solution to be used with them, an antidote to chlorine gas, are procurable for another shilling. Editorially the *Lancet* advises for the same purpose the use of a bath towel soaked in a ten per cent. solution of washing soda. The eyes should be kept shut unless goggles are available.

AN IDEAL OPERATIVE RESULT.

At a meeting of the Société de médecine de Paris, held on May 28, 1915, and reported in *Presse médicale* for June 3d, Péraire brought forward a soldier whose nose, removed by a fragment of shell, he had entirely reconstructed. He had taken the seventh costal cartilage as a support, slipped it under the frontal bone, trimmed it properly, twisted it once or twice, and sutured it to the tissues of the cheeks. The patient could actually blow this new nose; a result, as Péraire remarked, which must be considered ideal!



PANORAMA OF PANAMA PACIFIC EXPOSITION.
Tower of Jewels in the centre. (© Underwood & Underwood.)

THE AMERICAN MEDICAL ASSOCIATION SIXTY-FIFTH ANNUAL MEETING

SAN FRANCISCO, JUNE 21 TO 24, 1915.

Place of Meeting.

THE sixty-fifth annual meeting of the American Medical Association served as an occasion for many physicians to visit San Francisco for the first time. These found a city unique in its character, admirably situated from a commercial point of view, provided with handsome buildings, extensive parks, and numerous and impressive public institutions.

The Panama Pacific International Exposition, to give it its full official title, has received a great deal of publicity and probably on account of the European war has affected a great many more visitors than had been anticipated. The exposition has made a unique record in that it has proved a profitable venture, the receipts for the first four months having shown a profit instead of a deficit, which is looked upon as normal in the conduct of such a colossal venture.

The management of the Panama-Pacific Exposition at San Francisco has been remarkably successful in having that city made the place of meeting of associations and societies of all kinds, including almost every phase of associated activities. Scientific organizations, commercial bodies, and trade associations representing widely varied interests have chosen San Francisco as a meeting place this summer and to accommodate them a special building has been erected in the heart of San Francisco known as the Exposition Auditorium, where every convenience is provided for association work. The period from June 14th to June 28th has been made a medical period by the meeting of a number of organizations connected with medicine, the most im-

portant of these being the American Medical Association, the meeting of which lasted from June 21st to June 24th.

The Proceedings.

The proceedings of the association opened with a meeting of the House of Delegates, which was held in the Exposition Auditorium on June 21st. This body, which is the governing body of the association, held eight sessions, reports of which are given below.

The opening general session of the association was held in the Columbia Theatre on Tuesday morning, June 22d, at 10.30, being called to order by the retiring president, Dr. Victor C. Vaughan, of Ann Arbor. After an invocation by Bishop William Ford Nichols, of San Francisco, Honorable Hiram W. Johnson, Governor of California, extended a welcome on behalf of the State. Honorable James W. Rolph, Jr., welcomed the members as Mayor of San Francisco. An address of welcome on behalf of the medical profession was then delivered by Dr. Harry M. Sherman, of San Francisco, president of the Medical Society of the State of California. The president-elect, Dr. William L. Rodman, of Philadelphia, was then introduced, formally installed, and proceeded to deliver his address as president, which is printed in full in this issue of the JOURNAL.

On Tuesday afternoon the several sections met, their sessions continuing from day to day until their business concluded on Thursday afternoon. Over 250 papers and addresses were presented in the several sections, beside the formal addresses by Dr. Victor C. Vaughan on Infection and Immunity; by Dr. W. C. Gorgas, Surgeon General of the United States Army, on Yellow Fever; by Dr. W. J. Mayo, of Rochester, Minn., on Cancer: Its Prevention and Cure; and by Dr. W. A. Pusey, of Chicago, on Syphilis as a Modern Problem.

The House of Delegates.

The House of Delegates met in the Exposition Memorial Auditorium, Monday, June 21st, and was called to order at 10 a. m. by the president, Dr. VICTOR C. VAUGHAN, of Ann Arbor, Michigan.

After a preliminary report of the Committee on credentials, roll call, and the adoption of the minutes of the sixty-fifth annual session, the president delivered a brief address:

President Vaughan suggested that the association send to different States clinical teachers to teach doctors in the latest and best methods of diagnosis.

The reports of the secretaries of the Board of Trustees, Judicial Council, Council on Health and Public Instruction, Council on Medical Education, and of the Committee on Red Cross Medical Work were read and referred to appropriate committees.

Report of the Secretary.—Dr. ALEXANDER R. CRAIG, of Chicago, presenting his report as secretary, stated that the fellowship of the association on May 1, 1914, was 41,029. During the past year, 343 fellows had died, 2,204 had resigned, 390 had been dropped as noneligible, 577 had been dropped for nonpayment of dues, and six had been removed from the rolls on account of being reported not found; making a total of 3,520 names to be deducted from the fellowship roll. There had been added 4,857 names to the roll, of which 3,713 were transferred from the subscription list. The fellowship of the association, on May 1, 1915, was 42,366, a net increase for the year of 1,337.

Report of the Board of Trustees.—Dr. M. L. HARRIS, of Chicago, secretary of the board, reported that the average weekly circulation of the *Journal A. M. A.* for 1914 had increased by 3,177. During the last fiscal year, 14,655 names were placed on the mailing list and 12,319 taken off. This latter figure included physicians who had died, certain of those who were ineligible to continue fellowship, those who voluntarily discontinued, and those who were dropped for nonpayment. The increase in circulation was due to continued efforts made during the year. During 1914, there were transferred from the subscription list to the fellowship roll 3,546 names.

Attention was called to the fact that on account of

the extension of the various activities of the association the profits had practically reached the vanishing point. This year the profits were slightly better, but only \$3,984.59. Reference to the association expenses showed that these expenses—those of the propaganda work, the chemical laboratory, medical education, therapeutic research, organization, health and public instruction—amounted to \$82,286.15, the major portion of which must be regarded as being expended for purely altruistic work. A reserve fund had been created, which now amounted to \$118,832.50. The board had adopted a resolution to

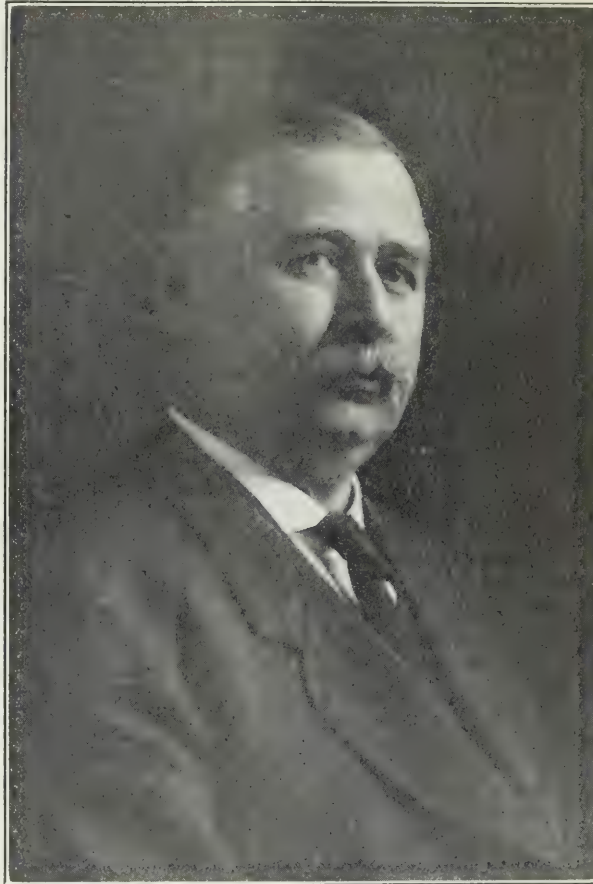
the effect that this reserve fund was not to be drawn on except by an affirmative vote of seven members of the Board of Trustees, and that the fund should be added to yearly.

Regarding the propaganda department, there had been a steadily increasing interest on the part of the general public in this educational work of the association relative to frauds in medicine. During the year the propaganda department received and answered nearly 5,000 inquiries relative to patent medicines and allied subjects. The interest of the public in the subject was further evidenced by the activities of various organizations, such as State and municipal boards of health, civic organizations, women's clubs, newspapers, and magazines.

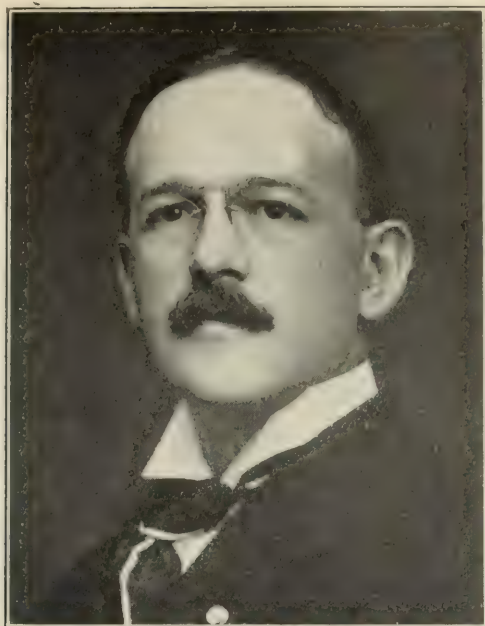
Reference was also made to the various law suits to which the association had been made a party through its altruistic activities in the interests of the public health. The financial report showed the association in a healthy and prosperous condition.

Report of the Judicial Council.—Dr. ALEXANDER LAMBERT, of New York, chairman, reported that regarding medical defense, the judicial council reiterated its opinion that benevolent work should be confined to the constituent associations of the national body and should be done by the State and county associations. Benevolent functions of an association dealt with the individual and each case must be dealt with individually. For this reason benevolent work should be left to the constituent bodies, as they had the most accurate knowledge and were best able to judge of the worthiness of each individual case.

As to Workmen's Compensation Laws, some



DR. VICTOR C. VAUGHAN,
President, 1914, American Medical Association.



LAWRENCE T. ROYSTER, M.D.,
Of Norfolk, Va., Chairman of Section in Diseases of
Children.

form of law had been already passed in more than half the States in the Union, and there was small doubt that before long such laws would have been passed in the majority of the States. The passing of these laws did not mean that some new or special law had been passed to compensate an injured workman under the old common law system, but it meant an entirely new legal and social conception of the compensation for injury and was, in fact, the beginning of a new social and economic condition in this country. These new economic conditions affected very materially the medical men in a community. It was certain to bring up the questions in new forms of contract and lodge practice, and health and accident insurance, or State aid and State medicine. It would also affect the relationship between boards of trustees and the attending physicians and surgeons in private and municipal hospitals. The report described briefly similar laws and the effect of them in Germany, England, and other countries of the Old World which had long since possessed them.

As to accident insurance, there were several methods by which the accident insurance of the various countries was put into practical effect. In Germany there was compulsory insurance in which all employers in the same industry were forced into mutual insurance associations. This plan was also followed by Austria, Luxembourg, Italy, and Hungary, although there were differences in important details from the German system. Norway and the Netherlands had a compulsory State insurance. Under this plan the employer must insure his employees through the State insurance department which fixed the premiums and paid the indemnities prescribed by law to those entitled to them. In Great Britain the workman must insure, but the employer might meet his obligation of compensation to the employee through State, mutual, or private stock companies. If an employer did not insure, the

English law made his employees preferred creditors up to £100.

Compulsory sick insurance had reached its greatest development in Germany, Great Britain, and Russia. In putting into effect the compulsory insurance, the governments of Europe had moved in the line of least resistance to obtain this end. The sick insurance was done through well recognized societies already existing, and in fact they varied from the old medieval guilds to the modern establishment fund where the employees of a single establishment were united in benevolent organization. In Germany the employer paid one third and the employee two thirds of the premiums. In England the employer paid thirty-three per cent. for men and 37.5 per cent. for women; the employee, if a man, paid 44.5 per cent., and 37.5 per cent., if a woman, the State contributing in the case of women twenty-five per cent., and in the case of men 22.5 per cent. of the entire expense. In Hungary, employer and employees contributed equal amounts.

From a brief summary of the various laws of social insurance in Europe, it seemed that there existed a tendency in these countries toward a complete group of laws which would protect the working community against industrial accidents, against sickness, would cover the loss of time and expenses of maternity, would grant funeral expenses and pensions for partial disability and for complete invalidity and pensions to the widow and orphan when the breadwinner was killed; gave a pension to early old age brought about by a life of toil and physiological old age when in natural course it brought the wage earner to the position of complete inability to work. The most comprehensive scheme was that of England which had added to these insurances and pensions that of unemployment for a certain length of time, provided that this said unemployment did not come from strikes or lockouts. There still remained in England an op-

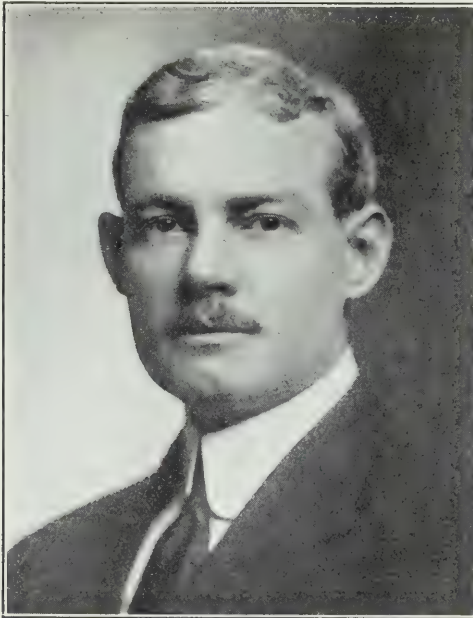


FRANK P. GENGENBACH, M.D.,
Of Denver, Secretary of Section in Diseases of
Children.

tion under certain circumstances of suing under the old liability laws, but this was seldom taken advantage of. Germany approached nearest to the complete insurance scheme of England.

As to the provisions for medical aid, in most countries in Europe, provision for medical aid seemed to be fairly generous. In Germany, the minimum requirements were that the fund furnished medical and surgical attendance, free medicine for twenty-six weeks and such therapeutics required as eyeglasses, trusses, bandages, etc. Whenever it was deemed necessary, in severe cases, the fund was to replace hospital treatment by home treatment. Most of the countries in Europe, including Great Britain, were equally generous to the workmen in their provision for medical and surgical aid.

In Europe, the struggle of physicians to obtain



EDWARD C. ELLETT, M.D.,
Of Memphis, Chairman of Section in Ophthalmology.

their economic rights in dealing with the various societies, through which the practical application of the insurance laws took place, had been evident from the beginning. In Germany the civic medical practitioners were officially grouped into local associations. These associations performed certain legal functions and exercised certain discipline through medical councils. In certain instances physicians had refused to treat members of the insurance societies as such, and insisted upon treating each individual patient as a private patient. This had caused the societies to import other physicians into the field in various cities; but this expedient had not always been successful because the type of physician brought in had not been so good as the local physician who had formerly done work for the societies, and frequently the societies had been unable to obtain sufficient physicians to do the work. In general, the most intense struggle had occurred over the question of free choice of the physician by the patient.

The economic effect of the laws in the United



CHARLES H. PECK, M.D.,
Of New York, Chairman of Section in Surgery, General and Abdominal.

States on the profession in general had been that the total income of the average surgeon doing work in industrial centres had been raised. Other surgeons who had had unusually good contract positions with certain large firms had suffered greatly in the reduction of their income, because in many instances they had previously received fees which, under the compensation laws, no commission or insurance company would pay per diem or office visit for services to most workmen.

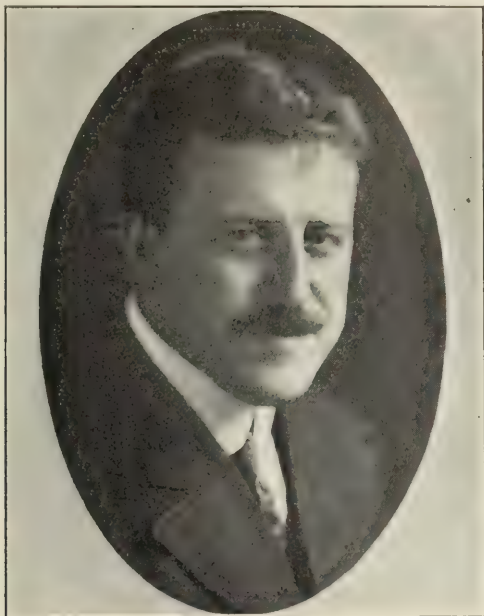
The hospital question in regard to compensation acts had further brought out the fact that most hospitals had been charging for patients in their gen-



OTTO P. GEIER, M.D.,
Of Cincinnati, Secretary of Section in Preventive Medicine and Public Health.

eral wards less than it had cost the hospital to care a week for each patient.

The other hospital questions under the compensation act opened up other relations which must be left for the future to settle, such as the relation of the outside surgeons to the hospital in caring for patients in the hospital when these surgeons were not attending surgeons to the hospital. These compensation laws set out to raise new standards in surgery and to change the judgments of results of many injuries, such as fractures from the point of view of near recovery to the basis of the percentage of human efficiency regained and the lack of permanent or partial disability left in the workman. This was equally certain to bring new standards of hospital efficiency, both in the rapidity of recovery

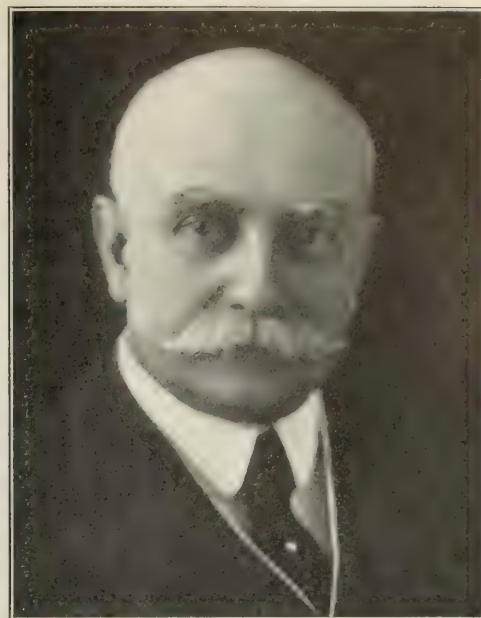


EMIL S. GEIST, M.D.,
Of Minneapolis, Secretary of Section in Orthopedic
Surgery.

of the patient and the retention of his economic value.

Report of Council on Health and Public Instruction.—Dr. HENRY B. FAVILL, of Chicago, chairman, reported that their work had included, 1, a thorough investigation of the present public health conditions in the United States with a view to securing more accurate information on all phases of the public health program than was now available; 2, the education of the public by every possible means in order that the people might understand the enormous advances in scientific medical knowledge during the last generation and the possibility of utilizing such knowledge in the prevention of disease, the reduction of the death rate, and the prolongation of human life; 3, the crystallizing of such educative public sentiment and necessary public health laws, regulations, and ordinances, which would render possible a conservation of human life commensurate with our advancing knowledge, and make such laws more effective through an educated and enlightened public opinion.

The entire energies and resources of the council



FRANCIS X. DERCUM, M.D.,
Of Philadelphia, Chairman of Section in Nervous and
Mental Diseases.

had been devoted during the past year to the development of this program. The reduced appropriation because of financial conditions had rendered it impossible for the council to attempt to develop any new lines of work. Its activities had therefore been confined to carrying on work already inaugurated.

One of the most important activities of many of the State organizations was the defense of its members from malpractice suits. Twenty-three out of the forty-eight State associations had now provided for such defense. The law of professional malpractice was not statutory law, but was to be found in



THOMAS McCRAE, M.D.,
Of Philadelphia, Chairman of Section in Practice of
Medicine.



GEORGE A. MOLEEN, M.D.,
Of Denver, Secretary of Section in Nervous and
Mental Diseases.

court decisions, or, as it was called in legal circles, case law.

The plan for development of model laws on fundamental subjects had progressed considerably during the past year. To the model law on vital statistics now recognized as a standard throughout the country, could now be added the bills on medical expert testimony and the prevention of blindness endorsed at the last conference, while the bills drafted on State regulation of the practice of medicine and State regulation of public health would serve for the concentration of discussion until something more definite could be worked out.

The various subcommittees of the council presented reports, such as those of the Committee on Women's and Children's Welfare, the Committee on Conservation of Vision, the Committee on Cancer, the Committee on Cooperation with the National Educational Association, the Committee on Uniform Regulation of Membership, the Committee on Medical Expert Testimony, etc.

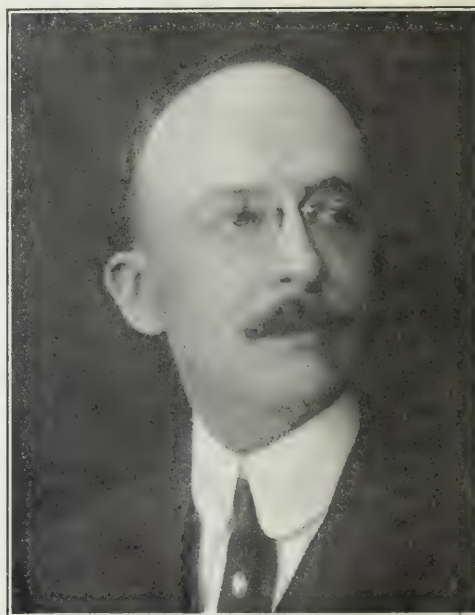
The work of the committee in coordinating the educational and medical professions had been of the utmost value, and the distribution of a pamphlet prepared by the committee could not fail to exercise a marked and permanent influence for the betterment of rural conditions through the country.

As to the work of the Committee on Conservation of Vision, lectures had been given in thirty-eight States, and 490 lectures had been delivered to audiences aggregating 113,898 people. This was a distinct gain on the work accomplished last year, when 339 lectures had been delivered in thirty States to audiences aggregating 69,425 people. What had this committee accomplished during the last two years to justify its existence in the past, and to warrant its continuance and liberal support in the future? 1. It had provided 829 lectures to audiences aggregating 183,223 people. 2. It had

caused to be written twenty pamphlets on eye subjects, with a distribution of 34,000. 3. It had supplied the *Press Bulletin* of the American Medical Association with short, practical articles on eye subjects which had reached hundreds of thousands of people. 4. It had distinctly aided in producing a sentiment over the entire country on the subject of visual conservation. 5. It had been the means of greatly increasing the enactment of laws, concerning the examination of the school children's eyes, ears, noses, and throats, and laws concerning trachoma and ophthalmia neonatorum. It also had greatly assisted in defeating laws concerning the practice of optometry. 6. It had had much to do with regard to stimulating interest in general medical school inspection, school nurses, etc., and in the establishment of these much needed conditions in many cities. 7. It had been the means of relieving thousands of children of adenoids, enlarged tonsils, discharging ears, deafness, inflamed eyes, crossed eyes, headaches, near sightedness, etc., and thus had not only improved their educational possibilities and general physical and sociological conditions, but also at the same time had greatly benefited the physical, mental, and nervous condition of their teachers. 8. It had signally aided the campaign against "shop accidents," by its pamphlets and lectures warning the public against such accidents, and how they could be best prevented.

Report of the Council on Medical Education.—

Dr. ARTHUR DEAN BEVAN, of Chicago, chairman, recalled that the country's supply of medical schools in 1904 had been far above normal, but had been reduced to an even hundred medical colleges. As expected, the general adoption of the higher entrance requirement had caused a decrease in the total student enrollment. After a year or two, however, had been allowed for readjustment, the enrollment, it was thought, would return more nearly to normal. Of the one hundred medical colleges



HOWARD FOX, M.D.,
Of New York, Chairman of Section in Dermatology.

still existing, eighty-four had put into effect the requirement for admission of one or more years of collegiate work, in addition to a high school education. In thirty-seven colleges the higher requirement began in 1914, and with one exception these colleges had decreased enrollments. A few of the colleges had limited their enrollments, so these showed neither increase nor decrease. In forty-seven colleges the higher requirement became effective, and from forty-two of these reports had been received showing this year's enrollments of students, and all but four reported either increased enrollments of students or larger freshman classes. In the thirty-seven medical schools which began the higher requirement in 1914, the percentage of decrease varied considerably, depending on the thoroughness with which the requirement was enforced.

A preliminary investigation of the hospital situation, made early in 1913, showed that there were enough hospitals in the United States having over twenty-five beds each to provide an ample number of internships for all students graduating in medicine. But not all these hospitals were using interns, so that only about three fifths of the number of internships needed were being provided. The situation called for a campaign to induce other good hospitals to provide for the use and training of interns. A careful investigation was made during the last year, which resulted in the preparation of a list of hospitals provisionally approved from the standpoint of the internships furnished. The reports from the State committees were of particular value, since they indicated what hospitals were worthy of investigation, should an actual inspection be deemed advisable.

There are now only two States, Colorado and Massachusetts, which do not give the licensing boards the authority to insist on graduation from a reputable college. Seven States still remained in which there were two or three boards, instead of



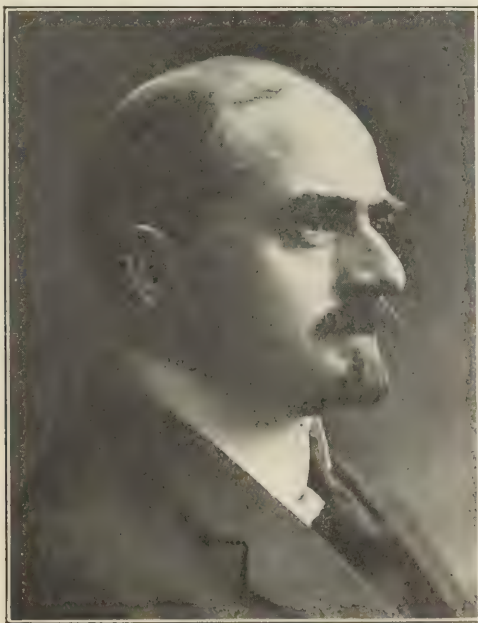
NORVAL HARVEY PIERCE, M.D.,
Of Chicago. Chairman of Section in Laryngology,
Otolaryngology, and Rhinology.

one, which had to do with the licensing of physicians.

In the reorganization of clinical teaching, first, the interests of scientific medicine were considered; second, the interests of the medical profession, and, third, the interests of the public. It was clear that the medical profession was entitled to proper compensation for its services, and that such compensation should be as large as that received by men of any other profession. No profession required a more laborious and thorough preparation; no profession and no class of men did so much charity work. Any member of the community who was able, therefore, should pay a proper fee for such medical service as he received. The plan of having fees for private practice to go to the university or to some special department was clearly unethical and illegal. It was unethical because the compensation for the peculiarly personal and individual services rendered by the medical man to his patient should be paid to the individual rendering those services, and not to any one else or to any institution.

Under the head professor of the clinical department should be a number of associates and assistants, men from twenty-five to thirty-five years of age, who should devote all or most of their time to clinical work, teaching, or research. These men should remain in these positions for from five to ten years, receiving promotion from time to time as might be deserved, and during this service they should receive a thorough training in their special clinical field, and also in teaching and research.

The committee made the following special recommendations which had been endorsed by the council: 1. It was recommended that no graduate medical school be approved by the council which accepted, as students, physicians who were not licensed practitioners, unless they were graduates of



THOMAS S. CULLEN, M.D.,
Of Baltimore. Chairman of Section in Obstetrics,
Gynecology, and Abdominal Surgery.

medical schools rated in Class A. 2. It was recommended that certificates, diplomalike in character, be not granted for less than four months of all day work, taken consecutively; that they be granted only for a systematic course, approved by the school, in which attendance and work had been satisfactory; that the student must pass an examination based on this course of study, and that only such graduate medical schools be approved which exacted these requirements. 3. There could be no fixed entrance requirements for graduate medical schools, there was no definite curriculum or time requirement, and it was not possible to classify graduate medical schools as had been done with the undergraduate schools. Therefore, it was recommended that the council's approval be on the basis of the content and character of the courses offered, and that in deciding on the approval of the courses,

Report of the Committee on Scientific Research.

—Dr. LUDVIG HEKTOEN, of Chicago, chairman, stated that since the last meeting of the House of Delegates the balance to the credit of the committee had been exhausted in the payment of pending grants as follows: Grant 34, \$200, Dr. Gerald B. Webb, of Colorado Springs, for work on immunity in tuberculosis; Grant 35, \$250, Dr. A. L. Prince, Yale University, New Haven, for work on the methods of determining the efficiency of the heart; Grant 36, \$200, Dr. E. R. Le Count, of Chicago, for study of syphilitic leptomeningitis; Grant 37, \$400; Dr. William DeB. MacNider, of Chapel Hill, N. C., for work on the toxicity of anesthetics in nephritis, and Grant 38, \$350, Dr. C. C. Bass, of New Orleans, for work on pathogenic protozoa.

Report of the Committee on the Nomenclature and Classification of Diseases.—Dr. CRESSY L.



PANAMA PACIFIC EXPOSITION.

Office of the United States Public Health Service Exhibit, Senior Surgeon C. C. Pierce in charge. (Cardinell-Vincent Co.)

the equipment of the school and the qualifications of the instructors be taken into account. 4. It was recommended that the council be empowered, in its discretion, to give its approval to research courses, to systematic courses for the training of specialists, and to other graduate courses when given in Class A medical school. 5. It was recommended that in determining the standard of graduate departments of medical schools, or independent schools giving instruction to graduates, the council be guided by an outline grading the various institutions on a civil service basis, in a manner similar to that employed by undergraduate medical schools.

Report of the Committee on Red Cross Medical Work.—Dr. GEORGE M. KOBER, of Washington, D. C., chairman, said it was gratifying to report that during the past year 296 county medical societies had created committees on Red Cross medical work, so that on May 1, 1915, not less than 510 committees, composed of 2,550 representative men in forty-eight States, covering nearly all parts of the country, were available to render trustworthy advice or assistance in any of the activities of the American Red Cross.

WILBUR, of Washington, D. C., chairman of this committee, reported that for various reasons the committee had found it impossible to accomplish much in the way of definitive work along the lines previously planned. Owing to the interruption resulting from the great war now in progress, the expected cooperation with the Committee of the Royal College of Physicians of London, now engaged on the fourth decennial revision of the English nomenclature, had not materialized. It would be well to await the results of this revision, which might be found to be an excellent system for adoption by American physicians, with such slight changes as would be necessary in this country.

Report of the Committee on Anesthesia.—Dr. W. D. GATCH, of Indianapolis, chairman, reported that his committee had arranged with the *Journal A. M. A.* for the publication of monographs on *Intratracheal Insufflation*, by Dr. Samuel Meltzer, and on the *Theory of Anesthesia*, by Dr. Evarts Graham. These monographs gave work of fundamental importance in anesthesia and represented a great amount of original research by their authors. It was planned to bring out similar monographs from



PANAMA PACIFIC EXPOSITION.

Looking south in the Court of the Universe. In the centre rises the Tower of Jewels, 435 feet in height, the dominating architectural feature of the exposition. On the left is the great Arch of the Rising Sun, surmounted by the group, The Nations of the East, and on the right is the Arch of the Setting Sun. These arches are equal in height, and are crowned by groups of statuary, symbolizing eastern and western civilization. In the centre of the court is the sunken garden, upon the western extremity of which is a carved fountain surmounted by a tall pillar of white glass, and crowned by a winged figure representing Victory. (© Underwood & Underwood.)

time to time. The committee had decided that this plan was best adapted to increase the knowledge of anesthesia.

Report of the Committee on Sections and Section Work.—Dr. HUGH CABOT, of Boston, chairman, stated that a study of the question by the committee had convinced them that the best development of the scientific work required the creation of some body having continuity of service: 1. To help co-operation between sections by having a broader and longer distance view of the problems than could be expected of section officers; 2, to settle questions of policy when difference of opinion arose between section officers; 3, to stimulate the development of weak sections; 4, to consider first hand applications for new sections or for changes in existing sections, and to report to the House of Delegates.

At the afternoon session, the House of Delegates heard the reports of the Committee on Scientific Research, the Committee on Scientific Exhibits, the Committee on Nomenclature and Classification of Diseases, the Committee on Anesthesia, and the Committee on Sections and Section Work. All these reports were referred to reference committees.

The House of Delegates then adjourned until Tuesday afternoon.

Tuesday Afternoon Session.—The House of Delegates resumed its deliberations, Tuesday, June 22d, at two p. m. The Board of Trustees, in its report on National antinarcotic legislation, recommended the repeal of Section vi of the Harrison Law, which permits the sale without prescription of mixtures containing not more than two grains of opium, or one fourth grain of morphine to the ounce, etc. Section vi reads as follows: That the provisions of this act shall not be construed to apply to the sale, distribution, giving away, dispensing, or possession of preparations and remedies which do not contain more than two grains of opium, or more than one fourth of a grain of morphine, or more than one eighth of a grain of heroine, or more than one grain of codeine, or any salt or derivative of any of them in one fluid ounce, or, if a solid or semi-

solid preparation, in one avoirdupois ounce; or to liniments, ointments, or other preparations which are prepared for external use only, except liniments, ointments, and other preparations which contain cocaine or any of its salts or alpha or beta eucaine or any of their salts or any synthetic substitute for them: Provided, that such remedies and preparations are sold, distributed, given away, dispensed, or possessed as medicines and not for the purpose of evading the intentions and provisions of this act. The provisions of this act shall not apply to decocainized coca leaves or preparations made therefrom, or to other preparations of coca leaves which do not contain cocaine." It was the opinion of the board that any proportion of opium or its alkaloids in a pharmaceutical mixture ought to subject it to the same restrictions as mixtures containing larger quantities, so that not only a prescription should be required, with the name and address of the patient plainly written thereon, but if the drug was wanted for the physician's own use, the regular blank provided by the Internal Revenue Department should be required. This recommendation of the board was endorsed by the House of Delegates.

The Reference Committee on Education presented a report in which it approved the recommendations of the Council on Medical Education as a whole. The Reference Committee on the Reports of Officers stated its approval and endorsement of the report of the secretary, the report of the Board of Trustees, the report of the Judicial Council on Health and Public Instruction, the report of the Committee on Red Cross Work, the report of the Committee on Scientific Research, the report of the Committee on Nomenclature and Classification of Disease, and the report of the Committee on Anesthesia.

A resolution was introduced commending the objects and purposes of the American Association of Milk Commissions. To the component societies of this association the resolution addressed itself particularly, pointing out the value and necessity of establishing and organizing medical milk commis-



PANAMA PACIFIC EXPOSITION.

Panorama showing the Japanese Red Cross nurses and doctors in the field. (Cardinell-Vincent Co.)

sions wherever local conditions warranted them. The interest felt in antipatent medicine legislation was manifested by recurrence to the discussion of the Harrison law and kindred enactments. A resolution was introduced calling upon the President of the United States to create a commission which should go thoroughly into the question of the sale of mixtures containing small quantities of narcotic drugs, and to investigate all the patent and proprietary preparations.

The Reference Committee on Legislation and Political Action introduced a resolution commending and endorsing the good work of the Council on Health and Public Instruction in its education of the public on the enormous advances in medical science and how these could be used in preventing disease and reducing the death rate, and its undiminished activity in spite of the reduced funds at its disposal. The resolution also approved highly of the work done in the conservation of vision and emphasized its endorsement of the council's endeavors to coordinate the activities of the numerous voluntary health organizations which had been established under various influences throughout the country.

No meeting of House of Delegates was held on Wednesday on account of this being health conservation day.

The New Officers are: President, Surgeon General Rupert Blue, Washington, D. C.; first vice-president, Dr. Albert Vander Veer, Albany, N. Y.; second vice-president, Dr. George B. Evans, Dayton, Ohio; third vice-president, Dr. Donald Campbell, Butte, Mont.; fourth vice-president, Dr. Herbert C. Moffitt, San Francisco, Cal.; secretary, Dr. Alexander R. Craig, Chicago, Ill.; treasurer, Dr. William Allen Pusey, Chicago, Ill.; trustees, Dr. M. L. Harris, Chicago, Ill.; Dr. W. T. Councilman, Boston, Mass., and Dr. Thomas McDavitt, St. Paul, Minn.; members of Judicial Council, Dr. James E. Moore, Minneapolis, Minn.; Dr. Randolph Winslow, Baltimore, Md.; member of Council on Health and Public Instruction, Dr. Milton Board, Louisville, Ky.; member of Council on Medical Education, Dr. R. C. Coffey, Portland, Ore.; Council on

Scientific Assembly, Dr. George H. Simmons, Chicago, Ill.; Dr. Richard S. Morris, Clifton Springs, N. Y.; Dr. E. S. Judd, Rochester, Minn.; Dr. J. Shelton Horsely, Richmond, Va.; and the secretary (Dr. Alexander R. Craig), member *ex officio*.

The place chosen for the next meeting is Detroit, Mich.

The Scientific Exhibit.—The scientific exhibit included a number of exhibits showing the results of original research work. In conjunction with this there was also shown a health conservation exhibit. The increase, year by year, in the scope and quality of the scientific exhibit has been most encouraging; in addition to the formal exhibits announced beforehand, many members brought small exhibits of their own, pictures, charts, microscopic and gross work, together with written records of their researches.

Health Conservation Exhibit.—On Wednesday, June 23d, all section meetings were adjourned and the whole day was given up to the health conservation exhibit. Room was easily found for this in the hospitable Exposition Memorial Auditorium, which has housed the entire A. M. A. meeting throughout the session. Dr. Victor C. Vaughan addressed the association on Infection and Immunity; Dr. W. C. Gorgas, surgeon general of the United States army, on Yellow Fever; Dr. W. J. Mayo, of Rochester, Minn., on Cancer, Its Prevention and Cure; and Dr. W. A. Pusey, of Chicago, on Syphilis as a Modern Problem. In the afternoon both large halls were given over to short talks by various well known men on malaria, dysentery, yellow fever, typhoid fever, plague, hookworm disease, leprosy, tuberculosis, syphilis, gonorrhea, pellagra, rabies, epidemic cerebrospinal meningitis, poliomyelitis, pyorrhœa alveolaris, trypanosomiasis, etc.

Practical Side of the Exhibit.—At the same time that these lectures were given in the convention halls, demonstrators presented exhibits in the corridors on the ground floor of the Auditorium, illustrating the subjects enumerated. The talks given and the exhibits were not of the conventional public health type. There were shown enough of the histori-

cal and the scientific subjects by lantern slides, charts, pictures, specimens and by other means, to make plain both to physicians and the laity the achievements of medicine in the broader scientific sense, and their relation to the prevention of disease. It was a triumphant and illuminating declaration to the world of its debt to scientific medicine for social, economic, and humanitarian progress. In the consummation of this unusual program, the committee relied with confidence on those who were interested and active in the advancement of preventive medicine, and invited them to give freely of their expert aid in the staging and presentation of these features. The committee requested scientific and public health workers to cooperate by exhibiting the materials necessary to illustrate, on a scientific basis, the evolution of preventive medicine to its present day practical and useful position, and greatly appreciated the cordial support they received from the many members specially active in these matters.

The Commercial Exhibit.—An elaborate exhibit occupied the ground floor of the exposition of the Memorial Auditorium, exhibitors endeavoring to make their exhibit of educational value. The exhibit was divided into the following classes: Publishers and books; foods and milk preparations; clinical laboratories; anesthesia apparatus; surgical instruments, and furniture; artificial limbs and supportive appliances; electro-medical and diagnostic appliances, radiographic apparatus and accessories; postgraduate instruction; underwear and surgical corsets; pharmaceutical and biological products; sanitariums; mineral waters.

Borden's Condensed Milk Company, of New York, exhibited the process of malting milk invented by Baron von Liebig, but he did not possess perfect

machinery, and the Borden Company now uses the vacuum process of condensing without impairment of food value, which was discovered by Mr. Gail Borden, the founder of their company. The success of this malted milk has been a sensation in food circles. It is destined to hold the market in this line, for it is in the restricted class of highly nutritious articles of diet that have a universal appeal, owing to excellence of materials, and choice and delicacy of manufacture. It is always advisable that special rules should go in the preparation of malted foods, for they have been a good deal exploited. The malted milk of Borden is made by the modern process of sterilizing in a vacuum and sealing by special methods, which have been almost an impossibility hitherto.

The famous Eagle Brand Condensed Milk was exhibited, with an account of the novelties which the enterprising manufacturers have introduced in this infant food. The result is an admirable product, which is in a class by itself. The ingenious and intensely modern methods of Borden's Condensed Milk Company have made it possible to raise the fat standard of their condensed milk and reduce the sugar ratio. The highest milk standards are the aim of the manufacturers.

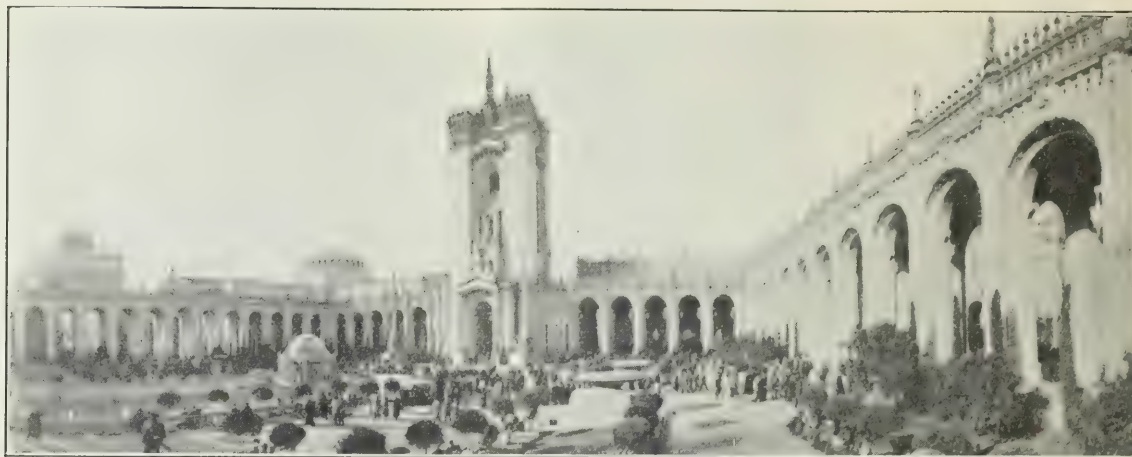
P. Blakiston's Son and Company, of Philadelphia, had for free distribution a handsomely printed book of portraits that interested medical men. This firm, as is well known, are leaders in the production of distinctly practical books covering every subject. Some notable works have been published during the past year, and the physician and surgeon were well repaid for giving careful examination to the books in the Blakiston booth, No. 4, opposite "Information Desk."

Mellin's Food Company, of Boston. Physicians



PANAMA PACIFIC EXPOSITION.

Panorama showing the Japanese Red Cross Society in the field. (Cardinell-Vincent Co.)



PANAMA PACIFIC EXPOSITION.

Characteristic scene in the impressive Court of Abundance, the great west court designed by Louis C. Mullgart. The photograph gives no conception of the wonderful coloring. On the left is seen a portion of the great arch of the Rising Sun. In the centre is the huge Gothic tower 270 feet in height. (© Underwood & Underwood.)

seriously interested in the problems of infant feeding had ample opportunity to make inquiries regarding the manufacture and composition of Mellin's Food and the application of this product in directing the nutrition of the normal healthy infant as well as the baby with a disturbed digestion.

The Welch Grape Juice Company, of Westfield, N. Y., exhibited at a place called the Welch Palace at the entrance to the Zone, Panama Pacific Exposition. It offered a cool haven for the tired physician, in the handsome brick and stucco building at the commencement of the Joy Zone.

The Life Saving Devices Company, of Chicago, exhibited the ingenious Lungmotor, a resuscitating device purchased by the United States Bureau of Mines. This exhibit showed physiological tests and mechanical construction, operation and method of resuscitation from gas poisoning, electric shock, drowning, asphyxia neonatorum, collapse on operating table, etc.

G. P. Pillings & Son, Philadelphia, demonstrated the Faught Blood Pressure Apparatus, also the Pilling Bracelet Blood Pressure Stethoscope. This stethoscope attracted a great deal of attention, as it is said to be the most accurate way of taking blood pressure by the auscultatory method. This instrument consists of a Bowles stethoscope, to which an additional band has been added, fitting over the brachial artery. The whole apparatus is attached firmly to the end, thereby taking away any liability of slipping while in use.

The Eastman Kodak Company, of Rochester, N. Y., demonstrated the "Seed" x ray plates for Gastrointestinal and Serial Stomach Examination. These plates are becoming very popular with those who require extreme speed, with or without the use of the intensifying screen.

The William Meyer Company, of Chicago, exhibited a new type of interrupterless x ray machine, containing several novel basic features. The radiographic work done with this new machine and with the Meyer method by a röntgenologist without previous transformer experience was demonstrated. There were also demonstrative clinics at two hospitals, showing the operation of this x ray machine

and the Meyer Combined Vertical and Horizontal Radioscope.

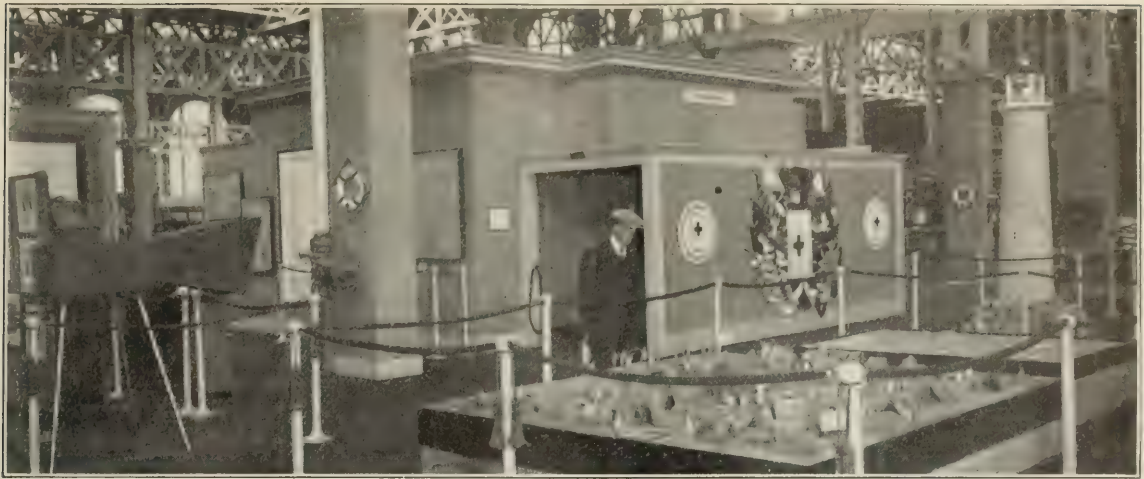
The Electro-Surgical Instrument Company, of Rochester, N. Y., exhibited and demonstrated opposite the registration booth a complete line of electrically lighted diagnostic and surgical instruments for the general practitioner as well as the specialist. The instruments are now equipped with lamps with drawn tungsten filaments which give maximum illumination, while their temperature remains practically the same as that of the tissues under examination.

The H. K. Mulford Company, of Philadelphia, displayed a scientific exhibit of bacterins, serobacterins, and vaccines, showing methods of production with working bulletins compiled from the latest information on the special subjects treated. This proved to be an interesting and instructive scientific exhibit of help to every practitioner.

Schering and Glatz, of New York, exhibited as in former years a display of their leading synthetic therapeutic agents, arranged in such a manner as to demonstrate the progress made and the prominent place they occupy in this field.

E. R. Squibb and Sons, of New York, exhibited a representative collection of their high quality products, comprising U. S. P. and N. F. chemicals, pharmaceuticals, and medicinal tablets; also impurities removed from some products after they have reached the U. S. P. requirements, to bring them up to the Squibb standard. Samples were at the disposal of physicians.

The Medical Exhibits.—The Exposition Hospital has already been described in the *NEW YORK MEDICAL JOURNAL* for March 27th. The next great features are the United States Public Health Service exhibit under the able management of Dr. C. C. Pierce, who is daily in charge, and the Red Cross exhibit. The Public Health Service presented in a popular and comprehensive way the latest methods of preventing communicable diseases. With the limited funds available for preparing this exhibit, many things have necessarily been omitted which might properly be shown. However, such material as has been prepared has



PANAMA PACIFIC EXPOSITION.

.... Model of the Red Cross Relief Camp during the famine in China. The booth back of the figure of the man standing contains a panorama of the work done in Messina, and requires five minutes to view, the scene changing from night to day. (Cardinell-Vincent Co.)

been made of a permanent character and scientifically accurate as to detail of construction and information furnished. The service maintained an office on the exhibit floor space, where officers and attendants of the service were constantly stationed to explain the different exhibits. All the service publications were displayed for ready reference. The exhibit material is grouped according to the disease which the exhibit is designed to illustrate, in stages and methods of prevention. The stage of typhoid fever is illustrated in many ways. The cross sections of a boarding house are shown, where the same woman serves the boarders and cares for a typhoid patient in the next room.

How Flies Spread Typhoid Fever.—A model house fly accurately made thirty-two times natural size is displayed. Fly eggs and larvæ magnified seventy-five times are shown. Souvenirs of this were given to visiting physicians. Here also were shown models of the rat flea, ratproof houses, and the U. S. S. *Ratless*, which name has been given to a section model of a ship practically ratproof. Yellow fever, smallpox, tuberculosis, rabies, Rocky Mountain fever, spotted fever, trachoma, diphtheria, mental hygiene, and dozens of other subjects were all specially illustrated. Moving pictures also gave many interesting details.

The Red Cross Exhibit.—A panorama of the ruins of Messina in 1908 required but five minutes of the visitor's time, while the scene changed from day to night. This was very beautiful and told a story peculiarly its own. Since 1905 the American people have contributed over twelve million dollars to the Red Cross Society. A pretty little illustration of this giving was a model of a lighthouse. This light flashed every six seconds, showing when a new dollar was added to the already generous giving. There were interesting exhibits of the kind of houses used by the Red Cross Society in different parts of the world during various calamities; for instance, the ones used in Golden Gate Park during the San Francisco fire of 1906 were not the same as those needed in the Ohio floods, mine disasters, forest fires, and Chinese

famine. There were also life sized models of nurses in uniform.

The Open Air School and Hookworm Disease had also large exhibits. The care of the insane under the New York State Hospital Commission was a wonderful exhibit. A special school for deaf and dumb was in actual operation.

What was known as Section 19 of the Palace of Liberal Arts was simply alive with medical material, one could not afford to miss. It occupied one quarter of the entire building, and even then was too small to hold it all. Hookworm disease was illustrated with life sized models in wax, under glass, disgusting to the layman, but quite the reverse to physicians. The figures represented children about seven or eight years of age. In this building is also a most wonderful display of artificial limbs.

The Philippine Exhibit, in the Palace of Education, contained much to interest physicians.

In the military department of the exposition there was encamped a detachment of United States Infantry. Here was to be found a small tent flying the Red Cross flag. In this, doctors could get a very practical idea of what the Red Cross society is doing.

First Aid.—In the centre of the Mines Building daily, at two o'clock, in a little mine situated beneath the floor of the building, was a noise resembling a mine explosion. In a few moments the relief corps, composed of several men dressed for the occasion, rushed up to the door of the mine building, down the shaft, and brought up the supposed victim of the disaster. He was placed on a raised platform, and while a lecturer explained the methods, he was revived by his companions. During this treatment, all the modern appliances for mine rescue work were displayed.

After this, the audience was invited into the mine, where all manner of safety devices were shown in operation, especially a mine door which has saved many lives. In this mine was a moving picture giving wonderful details of the work. On the way down the mine one stopped midway to see

a valuable and interesting exhibit of radium, which to physicians was of peculiar interest.

Quinine Fields.—Panama Canal.—But with all this detail we must not omit the models of the quinine fields exhibited in the Netherlands Building.

This latter place also has another feature which will appeal to medical men. The panorama of the Panama Canal, while perhaps not built with this



RUPERT BLUE, M.D.,
Surgeon General, United States Public Health Service, President-elect.

special idea, conveyed many new hints on the possibilities of overcoming the evils of disease with proper attention to hygiene. It may surprise many people to know that the death rate at present on the Isthmus of Panama is lower than that of any other place in the United States.

The perfect Zone reproduction of the Panama Canal has been the subject of much comment on the part of Exposition visitors. However, this is not so puzzling when one considers the care and expense to which the engineers in charge of the work went in order to reproduce accurately the Isthmian waterway and surrounding territory. Every minute detail was worked out with engineering accuracy from plans and drawings furnished by the United States Government. In order to give the spectators a panoramic view of over 100,000 square miles of land and water, it was necessary to lay out the topography absolutely correctly, and this required months of painstaking labor.

New York City Building.—In closing let us not forget our own New York City Building. It is the only city building at the exposition and is under the able management of Mr. L. Morton Fouquet. In this may be seen almost at a glance, one may say, just what is being done in the various departments of medicine in New York. The hospitals, colleges, departments of correction, etc., are set forth in such a manner that a physician may get in a few moments what it would otherwise take months to collect. Mr. Fouquet is in daily attendance and, while not a physician, so thoroughly knows the subjects he is illustrating, that he is able intelligently to point the way to those who wish to seek deeper knowledge.

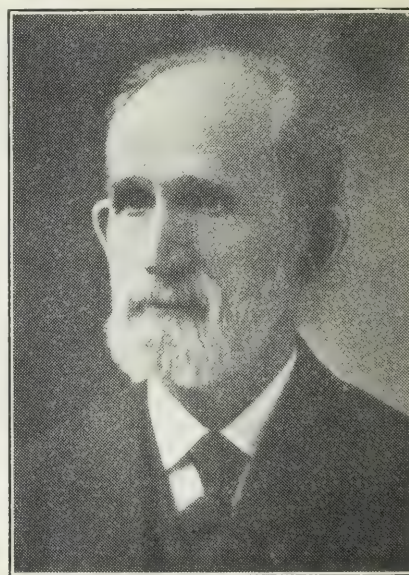
Below is a short list of important medical points which every doctor would wish to see.

1. Hospital in the Service Building. Fillmore Street entrance.
2. Medical Section No. 19. Palace of Liberal Arts.
3. New York State Hospital Commission, with information regarding the care of the Insane. Avenue D and Third Street. Dr. H. M. Porlock.
4. Mine Explosion, Mines Building, daily, at 2 p. m.
5. Radium exhibit, Mines Building.
6. United States Public Service Exhibit, Dr. C. C. Pierce, Palace of Liberal Arts.
7. Red Cross Society, Palace of Liberal Arts.
8. Panama Canal, on the Zone.
9. Baby Incubator, on the Zone.
10. Red Cross Hospital, Military Camp, near Live Stock Exhibit.
11. Quinine Fields, Netherlands Building.
12. New York City Building, under direction of Mr. L. Morton Fouquet.

The Social Features.—On Monday, June 21st, provision was made by the members of the Presidio Golf Club for a golf tournament for the visitors, the prize being the Panama Exposition Cup, and a dinner being held for the golfers on Friday evening.

Banquets and smokers for various organizations and groups of members were held on Monday night, the section banquets on Tuesday night, and on Thursday night the various alumni and class reunions were held.

On Wednesday night the formal reception and ball in honor of the president of the association was



A. VANDER VEER, M.D.,
Of Albany, N. Y., first vice-president-elect.

held in the California building on the Exposition grounds.

The Arrangements for the Meeting.—As usual every effort was put forth by the local committee and the officers of the association to contribute toward the comfort and convenience of the visitors. A bureau of registration was maintained in the Exposition Memorial Auditorium, in connection with

which a branch post office and a bureau of information were established.

Meetings of Other Bodies.—Among the most important of the medical organizations which met at San Francisco during the medical period was the Seventh Pan-American Medical Congress, which met in San Francisco in response to an invitation extended by Act of Congress on March 3, 1915. The governments of the following countries received invitations to take part in this congress and the majority sent delegates: The Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, San Salvador, Ecuador, Guatemala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbados, St. Thomas and St. Vincent.

Nearly 300 papers, covering the entire domain of medicine, were contributed by the delegates to the Pan-American Medical Congress.

From June 14th to 16th the American Society of Tropical Medicine held its annual sessions in San Francisco and the Pacific Coast Oto-Ophthalmological Society met on the same days. Other association meetings were held in San Francisco as follows; American Society of Tropical Medicine, June 14th to 16th; American Association Medical Milk Commissions, June 17th to 19th; American Climatological and Clinical Association, June 18th and 19th; American College of Surgeons, June 21st; Medical Society of the State of California, June 21st; American School Hygiene Association, June 25th and 26th; American Association of Medical Examiners, June 21st; American Therapeutic Society, June 21st and 22d; American Proctologic Society, June 21st and 22d; American Hospital Association, June 21st to 25th; Medical Association of the Isthmian Canal Zone, June 23d and 24th; Pacific Association of Railway Surgeons, June 25th; The American Academy of Medicine, June 25th to 28th; National Eclectic Medical Association, June 14th to 17th; Eclectic Medical Society of the State of California, June 14th to 17th, and the American Suggestive Therapeutical Association, June 15th to 18th.

The nurses' associations, including something like 9,000 delegates, also met during the week of June 20th to 27th.

News Items.

Changes of Address.—Dr. G. Byron Brown, from Yonkers to 48 Lake Avenue, Saratoga Springs, N. Y.

American Society of Tropical Medicine.—The following officers were elected at the annual meeting of this society, held in San Francisco during the week of June 14th: President, Dr. Milton J. Rosenau, of Boston; first vice-president, Dr. Bailey K. Ashford, of San Juan; second vice-president, Dr. C. C. Bass, of New Orleans; secretary, Dr. John M. Swan, of Rochester, N. Y., reelected.

Maine Medical Society.—At the annual meeting of this society, held in Poland Springs, Wednesday and Thursday, June 9th and 10th, the following officers were elected: President, Dr. E. E. Holt, of Portland; first vice-president, Dr. H. B. Mason, of Calais; second vice-president, Dr. Harry A. Snow, of Milo; secretary-treasurer, Dr. John B. Thompson, of Bangor. The 1916 meeting will be held at Portland.

Gifts to Dalhousie University, Halifax.—Announcement is made of a gift of \$30,000 to Dalhousie University, Halifax, Nova Scotia, toward the endowment of a chair of anatomy. It is said that in the near future the gift will be doubled.

Smallpox in New Bedford, Mass.—There is at present an outbreak of virulent smallpox at New Bedford, Mass. According to reports received by the United States Public Health Service, there have been ten cases, with three deaths, since May 15th. Four of the cases were of the hemorrhagic type.

A Division of Hygiene in the Department of Health of Boston has been established by Dr. Allan J. McLaughlin, commissioner of health. The work of the division will consist in directing child welfare work, public health nursing, promoting traveling exhibits, public lectures, etc. Professor Selsker M. Gunn, of the Massachusetts Institute of Technology, has been appointed chief.

University of California.—Among new appointments to the staff of the medical department of the University of California are those of Dr. A. W. Johnson as instructor in laryngology, otology, and rhinology; Dr. Olga Louise Bridgman as instructor in pediatrics and mental abnormalities of childhood; and Dr. Alfred E. Meyers, Dr. Howard E. Ruggles, and Dr. Vivian Belle Appleton, instructors in pediatrics.

American Aid for Belgian Physicians.—The following contributions were received by the treasurer of the Committee of American Physicians for the Aid of the Belgian Profession during the week ending June 19, 1915: Dr. L. O. Tarleton, First Lieutenant, United States Army, Manila, P. I., \$5; Norwich Medical Association, Norwich, Conn., \$25; Westmoreland County Medical Society, Mount Pleasant, Pa., \$25; Elmira Academy of Medicine, Elmira, N. Y., \$50; Dr. Angus McLean, Detroit, Mich., \$30; total, \$135.

Out Patient Staff to Receive Salaries.—The Board of Governors of the Society of the New York Hospital has voted to pay salaries to the members of the out patient staffs of the New York Hospital and House of Relief. The salaries range from \$100 to \$400 a year. Ordinarily each member of the out patient staffs attends three clinics a week, the surgical clinic being held in the morning, and the medical clinic in the afternoon. It is believed that this is the first instance on record in which salaries have been paid to an out patient staff by a general hospital.

Iowa State Medical Association.—At the annual meeting of this association, held in Waterloo on May 12th, 13th, and 14th, the following officers were elected: President, Dr. W. C. Small, of Waterloo; first vice-president, Dr. J. P. Luckey, of Vinton; second vice-president, Dr. H. B. Gratiot, of Dubuque; treasurer, Dr. T. F. Duhigg, of Des Moines; Secretary, Dr. J. W. Osborn, of Des Moines; editor, Dr. D. S. Fairchild, of Clinton; counsellor, first district, Dr. John Walker, of Fort Madison; president-elect, Dr. J. F. Herrick, of Ottumwa. Next year's meeting will be held in Davenport.

The Cornell Medical Society of New York City.—This society, which was organized, February 4, 1915, by twenty members of the teaching staff of Cornell University Medical College, held its first annual dinner on Friday, May 21st. Dr. John A. Hartwell, president of the society, acted as toastmaster, and among those who responded to toasts were Dr. W. Gilman Thompson, Dr. Graham Lusk, Dr. Frank S. Meara, Dr. Arthur M. Wright, and Mr. Douglas Palmer. The society meets four times a year, in October, December, February, and April, with an annual meeting and banquet in May.

A Banquet to Dr. Theobald Smith.—A complimentary dinner was given at the Harvard Club, Boston, on Wednesday evening, June 2d, in honor of Dr. Theobald Smith, who has resigned the George Fabyan professorship of comparative pathology in the Harvard Medical School to become director of the department of animal pathology at the Rockefeller Institute. About two hundred men were present. President Lowell presided and among those who spoke were President emeritus Charles W. Eliot, Dr. Frederick C. Shattuck, Dr. William S. Thayer and Dr. William H. Welch, of Johns Hopkins University, Dr. Simon Flexner, of the Rockefeller Institute, Dr. E. H. Bradford, dean of the Harvard Medical School, and Doctor Smith.

A New Staff House at Willard Parker Hospital has been contracted for and the work has already been begun. The new house will provide quarters for nurses as well as for the medical staff.

Honorary Degree for Doctor Billings.—At the June commencement exercises of Harvard University, twelve honorary degrees were awarded, one of which, the degree of Doctor of Science, was conferred on Dr. Frank Billings, of Chicago.

Arkansas Medical Society.—Dr. J. C. Wallis, of Arkadelphia, was elected president of this society, at the annual meeting held in Little Rock on May 6th, succeeding Dr. St. Cloud Cooper, of Fort Smith. Dr. C. P. Meriwether, of Little Rock, was reelected secretary, and Dr. W. R. Bathurst, of Little Rock, was reelected treasurer and editor of the official organ of the society. Next year's meeting will be held at Texarkana.

Enforcing the Law Against False Therapeutic Claims.—The health department of New York has begun a series of prosecutions for violation of the section of the sanitary code which prohibits the false labelling of medicinal preparations. On this subject, the code declares that "any statement, design, or device, regarding the drug or its ingredients, or regarding its or their action on diseased conditions, which statement, design, or device, shall be false or misleading in any particular," is forbidden.

North Carolina Medical Society.—The annual meeting of the North Carolina Medical Society was held at Waynesboro on June 15th, 16th, and 17th. The following officers were elected: Dr. M. H. Fletcher, of Asheville, president; Dr. B. K. Hayes, of Oxford, secretary, and Dr. W. M. Jones, of Greensboro, treasurer. Vice-presidents are Dr. J. L. Nicholson, of Richlands; Dr. L. N. Glenn of Gastonia, and Dr. W. H. Hardiston, of Cresswell. The meeting next year will be held at Durham, during the third week in April.

North Dakota Medical Association.—The two days' annual convention of this association was brought to a close on the afternoon of May 13th by the election of the following officers to serve for the ensuing year: President, Dr. H. V. Stickney, of Dickinson; first vice-president, Dr. V. J. Larose, of Bismarck; second vice-president, Dr. George M. Williamson, of Grand Forks, N. Dak.; third vice-president, Dr. E. A. Pray, of Valley City; secretary, Dr. H. J. Rowe, of Casselton; treasurer, Dr. W. F. Sihler, of Devils Lake. The next meeting place is Devils Lake.

To Regulate Use of Term Trained Nurse.—Dr. S. S. Goldwater, Commissioner of Health of the City of New York, has issued the following notice: "In order to prevent untrained persons from fraudulently obtaining employment as nurses in the treatment of serious and especially communicable diseases, such as typhoid fever, an amendment to the sanitary code has been adopted, which provided that 'no person other than one who shall have graduated after a course of training of not less than two years' duration from a hospital training school for nurses,' shall practise as a 'trained, graduate, or certified nurse.'"

Intemperance and the Public Health.—At a recent conference attended by 200 Indiana health officers, a resolution was adopted unanimously declaring that health officers and physicians should join in the campaign against alcohol. As a matter of fact, health officials in many States are already engaged in efforts to combat intemperance by educational means, justifying their activities in this field by the following assertions.

A diminution in the consumption of alcohol by the community would mean less tuberculosis, less poverty, less dependency, and less pressure on our hospitals, asylums, and jails. Intemperate drinking cuts into the support of the family. The drinking of parents weakens the vitality of children. Drinking mothers lose twice as many babies as do sober mothers. More alcoholism is found in the parents of feeble-minded children than in the parents of normal children. The children of drinkers develop more slowly and do poorer school work than the children of abstainers. Alcohol impairs the tone of the muscles, lessens the product of laborers, depreciates the skill and endurance of artisans, impairs memory, multiplies industrial accidents, causes chronic disease of the heart, liver, stomach, and kidneys, increases the death rate from pneumonia, and lessens natural immunity to infectious diseases.

Gifts and Bequests to Hospitals.—The late Dr. John Bromley, of Philadelphia, bequeathed \$1,000 each to the Episcopal and St. Timothy's Hospitals.

The Methodist Hospital, of Philadelphia, will receive \$1,000 by the will of the late Martha Moore.

A contingent bequest to St. Timothy's Hospital, Philadelphia, is contained in the will of the late Charlotte M. King.

The late Rosalie L. Hope, of Philadelphia, bequeathed \$2,000 to the Jewish Hospital, Philadelphia, to endow the Leffmann and Rosalie L. Hope bed.

By the will of the late Annie Campbell, St. Joseph's Hospital, Philadelphia, will receive \$2,500.

An Antimosquito Campaign in New York City.—Under authority of the sanitary code the Department of Health of the City of New York has drained, oiled, or pumped out the ponds and marsh lands at Bayside, Douglastown, and Little Neck, and all the marsh land from Jackson Avenue to the head of the Glaigh in Flushing. All marshes from Hutchinson to the Bronx River in the Bronx have been drained, with the exception of about 350 acres, whose owners have not yet been found. The marsh area of Pelham Bay Park have been drained by the park department under the supervision of the health department. The department has now prepared plans of areas to be drained in Brooklyn, and this work will be taken up at once, the cost being assessed upon contiguous territories as has been done with the areas already treated.

A Higher Death Rate Last Week.—According to figures issued by the Department of Health of the City of New York, the mortality of the past week was remarkable for the rather sudden increase over that of the corresponding week in 1914. The number of deaths reported was 1,392, an increase of 170 deaths. This increased mortality was due mainly to infectious diseases, accompanied by an increase in some of the causes that are closely associated with them. The mortality from measles, scarlet fever, diphtheria, and whooping cough combined amounted to 82 deaths against 48 deaths from the same causes in the corresponding week of 1914. Associated especially with the increase from measles was an increase in the mortality from bronchopneumonia, the number of deaths having jumped from 81 to 108 during the past week. The mortality from organic heart disease, lobar pneumonia, tuberculous diseases other than pulmonary, diseases of the nervous system, and deaths from violence, all showed increase. Typhoid fever showed a slightly decreased mortality, while that from diarrheal diseases was stationary.

Personal.—Dr. Simon Flexner, medical director of the Rockefeller Institute for Medical Research, has been given the honorary degree of LL.D., by the University of Maryland.

Professor E. F. Ladd, of the University of North Dakota, and food commissioner for the State, has had conferred upon him the honorary degree of LL.D. by the University of Maine.

Dr. Henry Albert Mattill, who recently resigned as professor of physiology and physiological chemistry in the University of Utah, has been appointed assistant professor of nutrition in the University of California.

Dr. Floyd C. Haviland, of New York, has been elected superintendent of the Connecticut Hospital for the Insane, at Middletown, to fill the vacancy caused by the death of Dr. Henry S. Noble, last March.

Among the recent changes in the duties of high medical officers of the United States Navy are the following: Medical Director Charles F. Stokes has been detached from the Naval Hospital, Philadelphia, and granted six months' sick leave, and his duties at Philadelphia will be taken up by Medical Director Oliver Diehl, who has been relieved from recruiting duty. Medical Inspector C. M. De Valin has been detached from duty at Norfolk, Va., and ordered to the Navy Recruiting Station at Philadelphia, vice Diehl, relieved.

Dr. David K. Henderson, resident physician of the Phipps Clinic of the Johns Hopkins Hospital, has been appointed superintendent of the Royal Asylum of Scotland, Glasgow. Dr. Roscoe W. Hall succeeds him in the Baltimore institution.

Dr. Matthias Nicoll, Jr., has been appointed assistant director of laboratories of the Department of Health of the City of New York.

Pith of Current Literature.

BERLINER KLINISCHE WOCHENSCHRIFT.

April 5, 1915.

Mechanism of Narcosis, by J. Traube.—Overton's and Meyer's theory of narcosis and osmosis and van t'Hoff's theory of osmosis are both insufficient to explain the phenomenon in all its ramifications. Some other factor is required to complete the explanation, and Traube believes this to be the affinity of the dissolved substance for the solvent. This affinity he calls the *Haftdruck*. The narcotics are nearly all quite soluble in lipoids and much less so in aqueous media. The propelling power of osmosis lies, then, in the reciprocal affinity between the narcotic and the solvents on either side of the cell membrane and, as the contents of the nerve cells are largely lipoidal, the penetration of narcotics is rapid and marked. In addition to their power of penetration into the cells, the narcotics all have the property of hastening physical changes and delaying vital oxidative processes. In short, they are catalyzers. They are capable of flocculating colloidal solutions and facilitating the swelling of gels. These actions are parallel to their activity as narcotics. Through these several properties they reach the nerve cells quickly and in considerable concentration and in part penetrate these cells. Here they are concentrated in the cell surfaces and thus serve to isolate the cells from their functional connections. Further, by their powers of inhibiting oxidative processes, they lessen normal cell reactions, and in both of these ways lead to the condition of narcosis. It has actually been proved that through their presence in the cells, they are capable of materially weakening the electrical impulses of nerves, and this action is also proportional to the degree of their narcotic activity. From studies on simple organisms their actions would seem to go so far as actually to produce a reversible, and therefore temporary destruction of the outer portions of the cellular protoplasm.

April 12, 1915.

Action of Aurocantan and Radiant Energy in Tuberculosis, by Gustav Spiess and Adolf Feldt.—Aurocantan is a complex combination of gold cyanide and cantharidin ethylendiamine. Gold, like other metals, is an oxygen carrier and hastens oxidative processes. Similarly the biochemical action of light is in the nature of the activation of these processes. Through the combined oxidative properties of aurocantan and ultraviolet rays on the body infected with tuberculosis, its oxidation processes are intensely stimulated. Through the increased oxidation of protein, carbohydrate, and fat and their decomposition products these agents produce a softening of tuberculous tissues. Simultaneously, through the stimulation of oxidation, metabolism is increased and the products of diseased processes are destroyed. The particular virtues of aurocantan lie in the fact that the cantharidin ethylendiamine component at once serves to reduce the toxicity of the gold cyanide and to carry the gold to the tuberculous tissues through its affinity for these. Here the gold is promptly reduced to the colloidal state and

exerts its action as a catalytic agent. It is probable that the gold inhibits the growth and multiplication of the tubercle bacilli by oxidizing the exoenzyme of the bacilli, thereby removing from this organism its nutritive elements. There is no evident attachment of the gold to the bacilli themselves, but on the preceding theory there need be no chemical union between the organisms and the gold to bring about their destruction.

Scarlet Fever and Diphtheria in Their Relation to Social Status, by Benda.—From an extensive study of the relation of these two infectious diseases to the social condition of the communities in which epidemics have occurred, Benda comes to the following conclusions. The better the social condition, the less dense the population, and the better the hygienic conditions the less will be the liability to the occurrence of diphtheria. On the other hand, these conditions did not seem to play an important role in the spread of scarlet fever, and it even seems as though the children of the well to do were especially liable to contract the disease. In the case of both diseases, however, the social condition materially influenced the mortality. It should be borne in mind, though, that individual disposition plays a decided role in the fatality of each of these diseases.

Sphygmobolometry of Sahli and Its Control, by Giovanni Ollino.—An elaborate apparatus and the technic of the procedure are described by which the accuracy of Sahli's sphygmobolometer was tested. The results of the test showed that the instrument is capable of giving relative or approximate actual measurements of the systolic energy of the heart. It would seem that by the instrument it was possible to measure approximately an aliquot portion of the heart's total energy. A close analysis of the mechanism of the process of sphygmobolometry, however, would lead to the impression that it really gives a measure only of the active energy of the pulsation in the particular arterial segment chosen for observation.

WIENER KLINISCHE WOCHENSCHRIFT.

May 29, 1915.

Arthigon in Gonorrheal Cardiac Disease, by Friedrich Luithlen.—Endocarditis symptoms appear in the course of gonorrhea in two forms—insidiously in the course of a gonorrheal arthritis or abruptly with marked constitutional symptoms, such as chill, fever, etc. The prognosis in this form of endocarditis is unfavorable, though not as grave as in the septic form. A case having cardiac complications is reported, in the treatment of which arthigon was used. It was administered intravenously in the dose of 0.1 to 0.2 gram and a reaction followed every injection as long as signs in the heart could be demonstrated. When these were no longer present, the injections gave no reaction. During the reactive period the patient felt worse in general, symptoms of cardiac collapse appeared, and the objective phenomena of the heart were temporarily made worse.

Positive Typhoid Reactions in Dysentery, by Richard Marek.—It has been demonstrated that many cases which clinically resemble dysentery give a positive Gruber-Widal reaction in a dilution of

one in 100; the author has been able to confirm this finding in a series of cases. When a case presents the symptoms of pain in the lower abdomen, frequent and painful colorless stools consisting mostly of blood and mucus, the diagnosis of dysentery can be made irrespective of the presence of the dysentery bacillus or a positive agglutination test. The obtaining of a positive Gruber-Widal in some cases of dysentery may be explained by the fact that many cases of dysentery are due to bacilli with which we are still not very familiar, and it is possible that some of these are very closely allied to the typhoid bacillus. A positive Gruber-Widal reaction should not be interpreted as evidence of the presence of typhoid fever until it is substantiated by the disease running the typical clinical course of typhoid fever.

Serum Therapy of Epidemic Meningitis, by C. Brach and Joseph Froelich.—The serum employed in the treatment of these cases was prepared from the serum of horses which had received immunizing doses of an extract of meningococcic cultures. Most of the cases showed the presence of thick greenish mucus on the posterior pharyngeal wall. The diagnosis was made by observing whether the spinal fluid was turbid. If so, from twenty to forty c. c. of warm meningococcic serum were injected intradurally, the amount depending upon the pressure in the spinal canal, which pressure was estimated by the manner in which the spinal fluid escaped. In cases of high pressure the fluid flowed out; in cases of low pressure it came out drop by drop. These injections were repeated every two or three days. In those cases in which the pressure was high, twenty c. c. of spinal fluid were removed on the day intervening between the injections. This procedure served the double purpose of lowering the pressure and ridding the body of some of the exciting organisms. The injections were followed by a reaction, the chief symptom of which was an increase in the fever. The spinal fluid became clearer and all the symptoms showed improvement, Kernig's phenomenon being the last to disappear. Locally gargles of antiseptics or Lugol's solution were employed. In a series of cases treated in this way eighty per cent. of patients recovered, ten per cent. showed no decided improvement and the remaining ten per cent. died.

PARIS MÉDICAL.

April 10, 1915.

Heliotherapy in the Treatment of Wounds, by L. Jaubert.—A report of the author's experiences with heliotherapy on the southern coast of France is given. Sunlight is credited with analgesic, antiseptic, healing, and eliminatory virtues. The treatment proved of value both in extensive superficial wounds of the soft parts and in wounds involving bones and joints, especially when the structures affected were relatively superficial. In all open wounds fetor of the discharges, when present, was caused to disappear after four or five sittings. Dead tissue is next eliminated, the pus becomes thinner and less in amount, and fleshy granulations appear. The efficacy of sunlight was shown in that in periods of bad weather or cloudiness, healing temporarily ceased. The resulting cicatrices were gen-

erally soft, flat, and devoid of keloid formations. In compound fractures requiring removal of fragments of dead bone, heliotherapy hastened regeneration of the bone tissue, diminished suppuration, and led to the discharge of small bits of dead bone overlooked at the operation. The general condition of the wounded was also favorably influenced. Good results were obtained from direct local heliotherapy and from exposure through glass. The treatments are gradually lengthened from eight or ten minutes to an hour or an hour and a quarter, in the course of eight or ten days. The wounds are carefully washed and dried before each exposure, and are kept under observation during the insolation, a discharge of pus or serous or seropurulent secretion, which requires removal with an absorbent pledget being generally excited. After the exposure an oily or slightly moist dressing is applied, to prevent adhesion and the tearing off of fresh epithelium.

PRESSE MÉDICALE.

April 15, 1915.

Chemotherapy and Vaccine Therapy in the Treatment of Wounds, by J. Danysz.—The fact is pointed out that whereas, in internal medicine, attempts to rid the organism of pathogenic bacteria by injecting strong antiseptics have been largely given up, in external treatment reliance is still placed on strong antiseptic solutions which, while unsatisfactory as regards antibacterial effects, also present the drawback of injuring the cells of the tissues undergoing repair. Clinical investigation has convinced Danysz that a one in 200,000 solution of silver nitrate is both sufficiently antiseptic to act strongly on suppuration due to bacteria and that, far from injuring the tissues, it markedly favors granulation and the healing of wounds. This is the strongest solution which, upon repeated intravenous injection in rabbits' ears, fails to cause an inflammatory reaction. In water inoculated with a bacterial bouillon culture, silver nitrate is lethal to most organisms in a solution of from one in 1,000,000,000 to one in 1,500,000. A one in 200,000 solution in very pure distilled water can be kept for a few days, but a solution in ordinary boiled water has to be prepared a few hours before use. Deep, severely infected wounds are rapidly improved by a few slow irrigations. For superficial wounds gentle spraying of the solution gives the best results. As the local condition improves the strength of the solution should be reduced to one in 500,000, the proliferating epidermal cells being more sensitive to the salt than those of the subjacent tissues. A one in 500,000 solution of mercury oxycyanide may be considered equivalent to the one in 200,000 silver solution. In pyocyanic infection, which is the most resistant to the silver treatment, washing the tissues with twenty or thirty per cent. alcohol should be tried. Calcium iodide in one in 100,000 solution may be used to stimulate phagocytosis. Combination of (autogenous) vaccine therapy with the silver treatment is recommended.

Diagnosis of Suppurative Arthritis in the Presence of a Near by Fracture, by Chaput.—The frequency with which purulent arthritis complicating a fracture of a long bone is overlooked is emphasized. The diagnosis is considered most diffi-

cult where the fracture involves the shaft of the bone near the epiphysis. In such instances the synovial membrane undergoes perforation in a few days, the joint pus mingling with that at the site of fracture, and passing into the latter sufficiently to prevent detection of any fluctuation over the joint. The diagnosis is based on the following features: 1. When the joint is opened and examined, a fissure may be noticed in the epiphysis; 2. the methylene blue test, consisting in the injection into the joint of enough sterilized methylene blue solution slightly to distend the joint; in a few seconds the focus in the bone will be colored blue if communication exists between the joint and bone foci. 3. Induction; whenever, in fracture near a joint, with satisfactory drainage, fever persists, joint suppuration may be suspected to exist.

BRITISH MEDICAL JOURNAL.

June 5, 1915.

Acute Aneurysm of Superior Mesenteric Artery with Rupture, by J. M. Cotterill and James Miller.—The patient was a man aged twenty-six years whose chief complaint was severe abdominal pain. He was first seen three days after the onset of his illness in collapse. The temperature was subnormal, the pulse irregular and thready. There was no vomiting, his bowels had not moved for three days. The abdomen was distended and showed no local dullness. There was diffuse subjective abdominal pain and no localized region of greatest tenderness. An enema was followed by a small movement. Seven hours after admission he went into severe collapse and died in half an hour. An autopsy revealed a thin walled aneurysm of the superior mesenteric artery which had ruptured into the mesentery and the peritoneal cavity. In the latter there was much fluid and considerable clotted blood. Large, friable vegetations were found on the aortic valves and several infarcts were present in the parenchymatous organs. The aneurysm was believed to be of acute origin and was thought to have been associated with the active infective endocarditis.

LANCET.

June 5, 1915.

Arteriosclerosis, by W. Lyne Blight.—There are four general causes of this condition: 1. The normal wear and tear of life; 2, the acute infections; 3, the intoxications; and, 4, those combinations of circumstances which keep the blood pressure high. The prodromal stages of the disease are associated with an arterial spasm due to the action of irritant toxic substances which cause a contraction of the muscular walls of the vessels. These later undergo hypertrophy with a resulting increased peripheral resistance and a secondary increased force in the action of the heart. The premonitory symptoms of the disease are often encountered in persons in middle life. They consist in a feeling of drowsiness, morning fatigue, headache, cold extremities, tinnitus, migrainous or neuralgic attacks and an elevated blood pressure with an accentuated aortic second sound. On the other hand, patients may develop an advanced degree of arteriosclerosis without manifesting any symptoms at all until the final

attack of fatal apoplexy. All gradations of type between these two may be found in the symptomatology of the disease. One of the most frequent early symptoms of the condition is a slight pallor and this is generally followed by a slow degradation of nutrition with the appearance of the dried flabby skin. Aside from the symptoms, which are legion, an important point in diagnosis of the disease lies in the form of the sphygmograph. This shows a slow up stroke, no distinct percussion wave and a very gradual fall without a dicrotic wave. The pulse rate taken with the patient standing should be compared with that when he is lying down. If the rate does not slow when lying down it indicates an unnaturally high tension in the vessels. If it is more rapid when the patient is recumbent than when standing, it is an indication of a serious grade of sclerosis.

Rheumatic Fever and Rheumatoid Arthritis, by J. T. Clarke.—An effort is here made to show that the geographical distribution of these two diseases is the same, and from this fact it is argued that both diseases are probably due to a specific microbial cause. Many statistics are presented to show that in all probability neither of these diseases is ever found naturally in any portion of the tropics, contrary to the statements of some writers. Not only is neither disease to be found in this zone, but the author has found that post mortem evidence of rheumatic endocarditis is virtually never found in the natives of the tropics. The same is true of chorea, which is supposed to be associated with rheumatic fever. On the strength of these facts, and in view of the recent work which tends to prove that rheumatic fever is due to a specific organism, Clarke believes it justifiable to regard rheumatoid arthritis as also being due to some form of specific bacterial infection.

The Genesis of Constitutional Gastropptosis, by John J. Grace and Walker Overend.—In the patients with this condition there is a diminished capacity of the upper portion of the abdominal cavity which is due, in the absence of any disease, to a congenital or hereditary defect of development. There is a general downward displacement of both soft and bony tissues of the chest and abdomen below the mammary region. This alteration in form can be expressed numerically in the form of an index which is obtained by dividing the minimum mean abdominal circumference by the distance from the sixth dorsal spine to the level of the crest of the ilium. Both measurements should be taken in cm. In the normal person this index is 3, and in those with the paralytic form of chest and abdomen it falls to 2, or below. A fallacy of this index lies in the fact that it may be present in persons who have no gastropptosis. The gastropptosis itself is due to a congenital elongation of the attachments of the stomach and intestine resulting from the failure of the natural adhesive processes which normally occur between the third and fifth months of intrauterine life. Even in such cases, however, so long as reasonable care is taken in the diet and in exercise and general hygiene there may be no development of true gastropptosis.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

June 12, 1915.

Etiology and Experimental Production of Herpes zoster, by E. C. Rosenow and S. Oftedal.—From the results of researches by Head and Campbell and by Rosenow, it occurred to the authors that the infection in this disease might contain streptococci or other bacteria having affinity for the posterior root ganglia, and experiments were made accordingly. Herpes of the skin, tongue, or lips, and lesions in the corresponding ganglia, have been produced in forty-six rabbits and other animals by intravenous injection of the bacteria in emulsions of extirpated tonsils, of mixed and pure cultures of streptococci obtained from tonsils or pyorrheal pockets, and of streptococci in pure culture from the spinal fluid. A number of animals, usually those presenting marked herpes of the skin, showed also herpetiform lesions of the viscera; and in these the ganglia of the vagus or sympathetic nerves were found to be hemorrhagic. In the animals which recovered, the peripheral lesions, just as in man, have not contained the organisms. Most of the eleven cases studied were typical thoracic herpes zoster, three were recurring herpes, one a marked herpes of the lips and cheek during pneumonia, and one a mild herpes during an ordinary cold.

Diagnostic Theses in Pulmonary Tuberculosis, by Lawrason Brown.—Among these are the following: An appearance of ruddy health does not exclude tuberculosis. In any patient with constitutional symptoms, no matter of what he complains, the possibility of tuberculosis must be kept constantly in mind. Prolonged and intimate exposure at any time of life, but especially in childhood, and in home, workshop, or office, is vastly more important than unassociated or noncontact heredity. Prolonged contact with tuberculosis may lead to infection, but debilitating conditions are usually necessary to cause this to develop into clinical tuberculosis. The history of certain complications, as fistula *in ano*, pleurisy (especially with effusion), adenitis, a discharging ear, coming on painlessly, is strongly suggestive of tuberculosis. Loss of color, prolonged exposure to tuberculosis, especially in childhood, with a history of swollen glands at that time, debilitating conditions, unequivocal constitutional and localizing symptoms, with or without such complications as those mentioned, demand a diagnosis of pulmonary tuberculosis even though no abnormal physical signs are present in the lungs. The importance of physical examination in the diagnosis of pulmonary tuberculosis has been overestimated. Symptoms are a better and more accurate guide to activity than physical signs. Symptoms without physical signs demand treatment, while physical signs without symptoms require only careful watching. Slight, but persistent, rise in temperature and increase in rapidity of pulse are often present early in the disease. The usual weight of a patient who manifests pulmonary tuberculosis is often ten pounds below the normal weight for his height and age. Failure to interpret rightly the significance of symptoms, or to detect the presence of abnormal physical signs, can be par-

doned; but failure to ask for and examine repeatedly the sputum in any patient with chronic cough is inexcusable. Absence of tubercle bacilli from the sputum means only that bronchial ulceration has not occurred. In the physical examination of the chest, auscultation is more important than inspection, and the detection of rales by auscultation of the inspiration following cough is the most important procedure in the detection of physical signs of early pulmonary tuberculosis. Changes in the relative lengths and intensity of inspiration and expiration are valuable, but less easy to detect. The disease is practically always more extensive than the physical signs indicate. Abnormal signs in one apex should be considered as due to pulmonary tuberculosis until proved not to be, while those of the base should be looked upon as nontuberculous until definitely proved to be tuberculous. The fluoroscope, the röntgenograph, and stereoscopic plates may reveal and locate pathological pulmonary changes to be detected by no other means. When sputum is lacking, or when tubercle bacilli are absent on repeated examinations, the possibility or the presence of bronchiectasis, hyperthyroidism, syphilis, or influenza, or even of pulmonary tumor or Hodgkin's disease, should be borne in mind. No modification of the tuberculin tests as yet devised differentiates clearly clinical tuberculosis, which demands vigorous treatment, from nonclinical tuberculosis, which requires only a wholesome life.

The Use of Kaolin to Remove Bacteria from the Throat and Nose, by L. Hektoen and B. Rappaport.—The authors have found that, when properly applied, kaolin, in the form of a dry powder, removes not only diphtheria bacilli, but practically all bacteria, from the nose in the course of three or four days. It is blown into the nose six or seven times a day by means of a rubber bulb attached to a suitable glass tube, the insufflation being repeated several times at each treatment. In cases of more or less obstruction of the nasal passages, the removal of bacteria is naturally more difficult. In order to secure the most thorough application of the agent to the mucous membrane of the throat, patients, if old enough, are instructed to swallow as slowly as possible one third teaspoonful of kaolin four or five times an hour during the day. In the case of small children it is more difficult to get enough kaolin applied, and the plan of mixing the kaolin with sugar, in the form of tablets, is being considered. Kaolin, and probably other substances of a similar nature, may prove of value in removing bacteria from various surfaces of the body by virtue of mechanical absorption; this may prove advantageous, not only in carriers, but also in conditions of acute infection.

MEDICAL RECORD.

June 12, 1915.

Recent Studies of Pancreatic Secretion, by Max Einhorn.—Einhorn's studies have been physiological and pathological. During the last three years he has examined 170 patients as to duodenal contents, making about 275 analyses of the pancreatic secretion. There is a noticeable difference between the three pancreatic ferments, as to quantity; it is neces-

sary to test for each separately. While the functional activity of the gastric juice is generally reckoned by the hydrochloric acid present, there is no definite substance in the pancreatic secretion for this purpose. As the trypsin ferment is the most important ingredient, it is suggested that it should be a measure of the functional activity of the pancreas. The pancreatic function is of importance in disturbances of this and neighboring organs, and in all diseased states. Exact knowledge of pancreatic activity will often assist, in conjunction with other symptoms, in making a diagnosis of a functional or organic disease; it will also suggest an appropriate diet for a given case.

The Giving of Nauheim Baths in this Country, by Simon Baruch.—Hydrotherapy of the failing heart is more flexible than drug therapy, though the latter is perhaps more rational than in any other disease not depending on a specific germ. In heart disease the water treatment may be graded and adapted, as in the case of other affections. If the case is urgent, it is well to begin, for the purpose of relieving cardiac action, with a full bath, lasting for six or eight minutes, made with four pounds of salt and half a pound of calcium chloride to forty gallons of water, at a temperature of 95° F. The saline ingredients counteract, by slight irritation of the cutaneous nerves, any deleterious relaxation which might otherwise result from a bath of this temperature. Later, cardiac exercise is produced by lowering the temperature of the water from time to time. The skin becomes inured, and may thus be brought to bear a temperature of 90° F. or less with comfort; as the tone of the cutaneous structures rises, and the heart becomes more capable of adapting itself to this slight peripheral resistance, carbon dioxide is added to the bath, in accordance with the change in the quality of the pulse. In ways like this the varying phases of cardiac insufficiency may be successfully met. While the artificial Nauheim bath, when employed intelligently and judiciously, is doubtless of great benefit, there is no question but that resorts like Saratoga Springs, in this country, and Nauheim, Kissingen, or Marienbad, abroad, present definite advantages in addition to the natural carbon dioxide bath, by reason of the patient's removal from an unfavorable environment to restful surroundings, under the care of physicians who have accumulated large experience in these resorts. The qualities of the Saratoga springs are those of Kissingen and Marienbad, and here, as at these spas, the perfect Nauheim bath may be obtained by the addition of the necessary proportion of sodium and calcium chloride; the other mineral ingredients playing a minor role.

Treatment of Pulmonary Tuberculosis, by A. H. Henderson.—Experience has shown that in calcium sulphide we have an agent which will control pus formation, which combines with the bacillus to increase phthisis. In the small number of cases in which the author has been able to use such treatment, it has apparently been beneficial. Four cases are cited. In the first, the patient had hemorrhage, cough, fever, and much expectoration, with well marked, rather diffuse signs of tuberculosis, mostly in the left lung. Calcium sulphide, six grains a day in three doses, was begun; all expectoration and

fever disappeared. He had no more hemorrhage, and while the tuberculous process was still active, as evidenced by indurated spots and some pain in the chest, this process was absolutely dry; no moist rales being heard. The man was able to resume his work, which had been given up. He was also holding his own, and stated that he felt as well as he had ever felt. He had no digestive or other trouble from the remedy. Codliver oil and creosote were also given. Fresh preparations of the calcium sulphide should be employed.

JOURNAL OF CUTANEOUS DISEASES.

March, 1915.

Xeroderma pigmentosum Following Severe Sun Exposure, by William Thomas Corlett.—In two cases, the sun's rays were a causative factor. The first case occurred in a child three years of age, in whom the condition developed after exposure to the sun's rays. One side of the child's face was sunburned; freckles appeared, then excrescences, which developed into malignant growths. In the second case, a man aged seventy years had scaly patches on the tips of the elbows and knees; on the exposed parts, he showed dark keratotic patches, three of which had begun to break down. On the index finger he had an ulcerating lesion, suggesting an epithelioma. The patient volunteered the information that sunlight did not agree with his skin. The author warns against the indiscriminate exposure of children to sunlight for prolonged periods, unless protected by a coat of tan, because of the possibility of producing xeroderma pigmentosum.

Urticaria pigmentosa, by Frank Crozer Knowles.—This rather rare affection appears usually in the first six months of life; it is not congenital. The lesions may be macular, nodular or mixed, and of a brownish yellow color. Itching when present is not very severe. Five cases have come under the author's observation. Histologically, urticaria pigmentosa is characterized by the presence of mast cells. These cells have been found in skin that is apparently normal, pointing to a congenitally abnormal skin.

Vaccine Treatment of Ringworm of the Scalp, by Albert Strickler.—The vaccine which he employs is a twenty-four day culture of infected hair derived from the scalp of patients suffering from tinea tonsurans. This hair is soaked in absolute alcohol, then washed in sterile water and planted on French proof agar. The growth is removed and rubbed up with crystals of sodium chloride and sufficient sterile distilled water added to make a salt solution. The culture is killed, tested for sterility and put up for injection. The injections are given between the shoulder blades once every four days. The dose of the vaccine varies from 0.5 c. c. to two c. c. No case was considered cured until the hair in and around the area proved free from fungus on microscopic examination. The author reports seven cases cured by this method alone, and pleads for an extended trial of this remedy to test its usefulness.

April, 1915.

Generalized Congenital Keratoderma, by Frederick S. Burns.—This was a case of congenital ichthyosis affecting a backward child. The parents, three

sisters and two brothers were all well. The changes in this boy's skin were noticed when he was about one year old. The dermatitis was generalized, even the palms of the hands and soles of the feet were affected, as also the nasal and buccal mucous membranes. The corneal portion of both eyes was thickened and uneven, so that the eyes had a semi-opaque appearance. Deafness was total, because both membranæ tympani were thickened and congested. The Wassermann reaction was negative. The treatment was hygienic with salicylated soap plaster on the diseased areas and inunctions of salicylated oil generally.

Alopecia of Hypothyreosis, by Douglass W. Montgomery.—A man aged forty-one years, of sedentary habits, was afflicted with alopecia and seborrhœa capitis. The patient was fat, with a heavy expressionless face, a malar flush, lemon yellow complexion. His lips were heavy; his voice husky; the gums were redundant, due to pockets containing serous exudation. The thyroid gland was not demonstrable. The patient was put on a normal diet and directions were given as to the care of the alimentary tract and as to exercise. A tar and sulphur ointment was prescribed for his scalp and extract of thyroid gland given internally, with the result that there was not only a marked improvement in the alopecia and the seborrhea, but also in the condition of his gums. At first this patient was given a large dose of thyroid with the result that he lost weight; this dose was afterwards lessened and the patient regained his weight.

Lupus erythematosus diffusus Unfortunately Treated with Tuberculin, by A. Ravogli.—A young woman aged twenty-four years, consulted the author on account of a reddish purple, diffused eruption of the face, scalp, neck, chest, arms, legs and feet. She developed a bronchitis which ultimately was diagnosed as a diffused pulmonary tuberculosis. The Moro test was positive; the Wassermann negative. From the clinical appearance of the eruption, the condition was diagnosed as lupus erythematosus. At first the patient was treated with tonics and a liniment of zinc oxide and the carbonate of zinc; she improved under this for a while and then became worse. The use of tuberculin suggested itself as a last resort and 1/100 of a milligram of tuberculin T. R. was injected into the back. The next day she manifested high fever, swelling of the face and hands. The high fever continued, the eruption developed blisters and excoriations, and she ultimately died of an acute miliary tuberculosis.

Bullous Dermatitis Caused by the Colon Bacillus, by Alfred Potter.—A woman, aged twenty-two years had negative history, and four weeks after the delivery of a healthy child, suddenly manifested convulsive seizures associated with unconsciousness which lasted one half hour. After this she felt fairly well for forty-eight hours and then came another attack. The next week she had a slight convulsive attack. During the third week of her illness she had a scarlatiniform erythema on the arms and face associated with some swelling and redness. The redness disappeared from the arms in three or four days, but persisted on the face. A bullous eruption now appeared on the hands. Scattered blebs were seen on the ankles and

forearm, but none on the mucous membrane. Her general condition became very bad. Examination of the pelvis, abdomen, heart, and lungs was negative. A bacteriological examination of the vaginal secretion was negative. The urine was negative and the blood showed nothing abnormal. A bacteriological examination of the fluid from the bullæ revealed a colon bacillus. The blebs spread to the buttock and shoulders and the patient sank into a typhoid state. The Widal was negative. After five weeks the patient began to improve. The treatment consisted in the administration of vaccine and simple supporting and eliminative measures. The author is of the opinion that the vaccine caused, in a great measure, the disappearance of the bullæ; he believes that this case was an example of erythema multiforme of the Osler type.

Letters to the Editors.

PROFESSOR CABOT AND WOMAN PHYSICIANS.

NEW YORK, June 18, 1915.

To the Editors:

I have been asked by a number of colleagues of both sexes whether I would not be willing to write a letter to the medical and lay press stating my views concerning what has been considered an unjustifiable attack on women physicians made by Professor Richard C. Cabot, of Harvard Medical School, in a recent address delivered before the graduating class of the Woman's Medical College of Philadelphia. I gladly comply with this request and hope that you, dear Doctors, will extend the hospitality of your columns to this brief communication. You may rest assured that thereby you will earn the gratitude of a fair minded public within and outside of the medical profession.

I am particularly anxious to ask your kind cooperation because of the more or less sensational headings with which Doctor Cabot's remarks have been reproduced in the lay press, and the likelihood of real harm being done to a just cause if some of the statements are not contradicted. Thus, for example, a New York paper, usually known for its dignified way of publishing news, headed the article, Doctor Man Calls Doctor Woman Unfit.

It is alleged that Doctor Cabot asserted that the majority of women physicians were not temperamentally and physically adapted for the more strenuous branches of the profession and therefore were "disappointed and dissatisfied." He is reported to have furthermore ventured the suggestion that women physicians should avoid taking up general practice and research work and should interest themselves in social service. Such statements as these, if accurately reported, must have surprised a great many physicians of the so called stronger sex as they have surprised me, if it has been their privilege, as it has been mine, to associate professionally with our sisters in medical work.

Doctor Cabot, in my opinion, has committed a grave error and has made an unjust accusation and I feel sure that he will regret the statement after more serious reflection. I know Doctor Cabot personally and know him to be of that large minded type of men who are willing to retract what may have been said on the impulse of the moment and what after due reflection they find to be erroneous.

It seems to me that we must admit that, considering the relatively small number of women physicians in the world, there are as many among them who distinguish themselves as among the men physicians. Doctor Cabot must be familiar with the work of the pioneers among women physicians who have become illustrious in all branches of medicine. I will merely recall the names of a few of them: Emily Blackwell, of New York, founder of the Woman's College; Anne Cleveland, of Philadelphia; Sarah Hackett Stevenson, of Chicago; Mary Putnam Jacobi, of New York; Cornelia Brown, the celebrated surgeon of San Francisco; Celia Mosher, of the same city; Clara Marshall,

of Philadelphia; Lillian H. South, of Kentucky, former vice-president of the A. M. A., noted for her work in the extermination of hookworm disease; Helen C. Putnam, M. D., LL. D., of Providence, R. I., one of our best authorities on school hygiene; Sarah McNutt, S. Josephine Baker, Lydia Allen De Vilbis, Rosalie Slaughter Morton, Anna W. Williams, of New York, all known for their unceasing labor on behalf of scientific medicine, public health, and child hygiene. Beside these, there are many others well known throughout the country for their unselfish and excellent work in their respective branches. Abroad we have Dr. Lydia Rabinowitsch, of Berlin, who recently received the title of Professor from the German government for her researches in tuberculosis; the late Robert Koch counted her among his most distinguished pupils. Paris too has many women physicians of distinction, and the greatest among them is Madame Klumpke-Déjerine, celebrated for her researches in neurology. There are hundreds of other women physicians, not all equally renowned, but certainly equally successful in their practice.

There are, of course, disappointments in the medical profession to women as well as to men. Some of both sexes are unsuccessful, but to generalize and say that women are unsuited for the medical career, and particularly for general practice, is a grave injustice. The woman who enters the medical profession with that enthusiasm, devotion, and self sacrifice characteristic of her sex, will not only be of as great service to suffering mankind as her brother physician, but will rarely fail. She will be neither "disappointed nor dissatisfied" and will do her work as well as the rest of us.

The social service to which Doctor Cabot thinks women are particularly capable can be rendered by the woman of average intelligence without the four or five years' training necessary to attain an up to date medical education. If in Doctor Cabot's opinion woman has a better understanding of social affairs than man has, then the woman physician can aid and guide the lay worker in that field of usefulness with all the greater intelligence and skill.

This is not the age of either man or woman alone; let us work side by side with our sisters in medicine, open the doors of all the medical schools to women, and give them equal opportunity, and they will do their share in advancing medical science, alleviating distress and suffering, sharing in social service as they are sharing nobly in other fields of human activity. S. ADOLPHUS KNOPF, M. D.

Book Reviews.

[We publish full lists of books received, but we acknowledge no obligation to review them all. Nevertheless, so far as space permits, we review those in which we think our readers are likely to be interested.]

Overcrowding and Defective Housing in the Rural Districts. By Dr. HARVEY B. BASHORE, Inspector for Pennsylvania Department of Health; Author of *The Sanitation of a Country House*, *The Sanitation of Recreation Camps and Parks*, etc. First Edition, First Thousand. New York: John Wiley & Sons, Inc.; London: Chapman & Hall, Ltd., 1915. Pp. 92. (Price, \$1.)

The existence of both overcrowding and defective housing in the larger cities, while most regrettable, is accepted as one of the almost unavoidable results of poverty and high land values. That a similar state of living should be encountered in small villages and even in the open country is probably but little suspected. Bashore's work will therefore astonish many, for he shows that in just those situations, in which ground is most plentiful and exceedingly cheap, overcrowding and defective housing are not at all unknown. For the existence of such conditions in rural communities there seem to be three main causes. One of these is the greed of gain on the part of certain mill and factory owners, which leads them to build dwellings of the most defective types, from the point of view of living conditions, in order to extract a little more revenue from their enterprises. A second factor is that of poverty, which is often abject in the rural districts as well as in the larger centres. The third cause rests with the victims themselves

and consists in a combination of ignorance of the ill effects of the conditions under which they live, with a seeming preference for huddling together in ill ventilated quarters. Not only are the overcrowding and defective housing encountered in the dwellings in such rural districts, but it extends even to the school houses, most of which are too small, have only a few tiny windows, and are inadequately heated by old fashioned stoves. Perhaps the most distressing feature of overcrowding lies in the inability to correct it by legal measures; for where it occurs there is usually no body politic other than that of a small village or the township government. The only obvious means to hand seems to be that of gradual education through the aid of visiting nurses and social workers, and this has the great disadvantage of being very slow. All in all, Bashore has written a most illuminating small volume, pathetic in the extreme though it be. It is to be hoped that his work will bear fruit by bringing the horrible conditions to the attention of others who will take up their correction.

Interclinical Notes.

The entertaining Dr. William Brady, of Elmira, contributes to the June *Nurse* Overhauling Grandfather's Chest, a characteristically humorous but scientifically accurate handling of a case of senile bronchitis. Dr. Franklin W. Barrows writes on Uncrippling the Cripple, and Dr. Thompson Frazer continues his paper on tuberculosis. Dr. Frederick C. Warnhuis writes on the nurse's duties during an operation. There are numerous practical papers by nurses. The illustrations are admirable as usual.

* * *

"Madame L. de Hegermann-Lindencrone, author of *The Sunny Side of Diplomatic Life*, has left Denmark for Italy. In her book of memoirs she tells of her meeting in 1884 with the present King of Italy, then the young Prince of Naples. 'The Principio,' she wrote, 'sat next to me at luncheon. He is very clever—unusually clever—and has a memory that some day ought to stand him in good stead. Mine by the side of it felt like a babe in arms. The questions he asked, *à brulpoint*, would have startled a person cleverer than I am.'" Thus the publisher's blurb; if the Principio ever sees that bit of contracted French, he will be startled too.

* * *

The following, according to the *Prescriber* for June, 1915, is one of the specimens submitted by the pupils at a school, who were asked to write a short love story. At least so says an exchange, from which it culls the story; we were not aware that the writing of love stories formed part of a child's education: "A poor man fell in love with a lady whose mother was a rich toy dealer. The poor man could not marry the rich lady because he had no money. A villain then offered him £10 if he would become a drunkard. The poor man wanted the money to get married with, so he agreed; but when he got to the beer saloon he said: 'No, I will not become a drunkard, even for great riches.' On the way home he found a bag of gold. So the young lady married him. It was a splendid wedding, and the next day they had twins. Moral: Virtue is its own reward."

* * *

The demon rum is certainly "getting his" all over the United States. In the *Outlook* for June 16th, Frederick M. Davenport's article on progress and reaction in the west is almost entirely devoted to the liquor question. It appears, first, that liquor will have to be given up by those engaged in hazardous occupations. Now everybody in New York who doesn't live over the store, is engaged in a hazardous occupation, so to speak, if we include his getting to work, taking an hour at noon, and going home as essential parts of the job, and the hazards are not confined to those who cross the East and North Rivers. Mr. Davenport thinks we shall have to face the problem of a national prohibition law before long.

* * *

We take from a letter accompanying an original communication the following bit of wisdom: "My experience with the medical society is that the one who talks to his audience is much better received than the one who holds his head over a paper and reads."

Official News.

United States Public Health Service:

Official list of changes in the stations and duties of commissioned and other officers of the United States Public Health Service for the seven days ending June 16, 1915:

Applewhite, C. C., Field Investigator. Directed to proceed to Walker County, Ala., for duty in connection with field investigations of rural sanitation. **Bahrenburg**, L. P. H., Surgeon. Detailed to attend the Summer School for Health Officers, to be held at the University of Texas, Austin, Texas, June 16-17, 1915. **Blue**, Rupert, Surgeon General. Designated by the State Department as delegate on the part of the United States to the Pan-American Medical Congress, to be held at San Francisco, Cal., June 17-21, 1915. **Foster**, M. H., Surgeon. Granted one month's leave of absence from July 5, 1915. **Fox**, Carroll, Surgeon. Directed to proceed to Toledo, Ohio, to complete the investigations of sanitary administration in that city; thence to proceed to Carson City, Nevada, to conduct a study of public health organization and administration. **Gardner**, C. H., Surgeon. Directed to proceed to Detroit, Mich., to arrive Monday morning, June 21, 1915, to serve as recorder of a board of commissioned officers for the examination of candidates for admission to the Service. **Holt**, J. M., Surgeon. Leave of absence for twenty-nine days from June 9, 1915, revoked. **Hommon**, H. B., Sanitary Chemist. Directed to proceed to Cincinnati, Ohio, to inaugurate the industrial waste studies carried on from that station. **Irwin**, Fairfax, Senior Surgeon. Granted twelve days additional leave of absence from July 24, 1915. **Kerr**, J. W., Assistant Surgeon General. Designated by the State Department as delegate on the part of the United States to the Pan-American Medical Congress, to be held at San Francisco, Cal., June 17-21, 1915. **King**, W. W., Surgeon. Granted nine days' leave of absence on account of sickness, from May 23, 1915. **Kolb**, Lawrence, Passed Assistant Surgeon. Detailed for duty at the Manhattan State Hospital, Ward's Island, N. Y., for the study of mental diseases, beginning July 1, 1915. **Korn**, W. A., Surgeon. Leave of absence for one month from June 6, 1915, revoked; directed to assume charge of the San Francisco Quarantine Station, Angel Island, Cal., relieving Surgeon M. W. Glover. **Magruder**, G. M., Surgeon. Granted seven days' leave of absence from June 23, 1915. **Pettus**, W. J., Surgeon. Granted six days' leave of absence on account of sickness, from June 6, 1915. **Prather**, D. J., Assistant Surgeon. Directed to proceed to Adel, Iowa, for duty in connection with the investigation of rural sanitation in Dallas County. **Reimer**, H. B. C., Acting Assistant Surgeon. Directed to proceed to the Marine Hospital, Chelsea, Mass., for temporary duty during the absence of Passed Assistant Surgeon G. L. Collins. **Slaughter**, W. H., Assistant Surgeon. Directed to proceed to Annapolis, Md., for duty in connection with investigations of rural sanitation in Anne Arundel County. **Taylor**, Quintard, Field Investigator. Directed to proceed to Walker County, Ala., for duty in connection with field investigations of rural sanitation. **Watkins**, J. A., Assistant Surgeon. Granted two months' leave of absence from July 5, 1915. **Young**, G. B., Surgeon. Granted one month's leave of absence from June 28, 1915.

Boards Convened.

Board of commissioned medical officers convened to meet at the Bureau, Monday, June 21, 1915, for the purpose of examining applicants for appointment as Assistant Surgeons in the Public Health Service. Detail for the board: Assistant Surgeon General W. G. Stimpson, chairman; Assistant Surgeon General L. E. Cofer, member; Passed Assistant Surgeon E. A. Sweet, recorder.

Board of commissioned medical officers convened to meet on Monday, June 21, 1915, at 10 o'clock a. m., for the purpose of making physical examinations and conducting the mental examinations of candidates for appointment as Assistant Surgeons in the Public Health Service, as follows:

Marine Hospital, Detroit, Mich., detail for the board: Senior Surgeon H. W. Austin, chairman; Surgeon C. H. Gardner, recorder.

Immigration Station, Ellis Island, N. Y., detail for the board: Surgeon L. L. Williams, chairman; Surgeon C. H. Lavinder, recorder.

Marine Hospital, San Francisco, Cal., detail for the board: Surgeon R. M. Woodward, chairman; Assistant Surgeon W. M. Jones, recorder.

Marine Hospital, Chicago, Ill., detail for the board: Surgeon J. O. Cobb, chairman; Assistant Surgeon C. L. Williams, recorder.

Marine Hospital, St. Louis, Mo., detail for the board: Surgeon M. J. White, chairman; Assistant Surgeon H. C. Cody, recorder.

Marine Hospital, New Orleans, La., detail for the board: Surgeon R. H. von Ezdorf, chairman; Passed Assistant Surgeon R. A. Kearny, recorder.

Births, Marriages, and Deaths.

Married.

Henry—Fraser.—In Brooklyn, on Wednesday, June 16th, Dr. Morris W. Henry and Miss Jean Fraser. **Heffernan—Dyer.**—In Holliston, Mass., on Wednesday, June 9th, Dr. Dennis W. Heffernan and Miss Helen G. Dyer. **Leonard—Richardson.**—In Newton Center, Mass., on Tuesday, June 15th, Dr. Edward D. Leonard, of Boston, and Miss Grace Kyle Richardson. **Marshall—Heinze.**—In Ashland, Pa., on Tuesday, June 8th, Dr. John F. Marshall and Miss Ulla Heinze. **Moore—Durkee.**—In Salt Lake City, Utah, on Thursday, June 3d, Dr. Charles O. Moore and Miss Josephine Alice Durkee. **Oden—Wahlquist.**—In Minneapolis, Minn., on Tuesday, June 8th, Dr. R. J. E. Oden, of Cadillac, Mich., and Miss Olga Wahlquist. **Rous—De Kay.**—In New York, on Tuesday, June 15th, Dr. F. Peyton Rous and Miss Marion De Kay.

Died.

Bacon.—In Cannelton, Ind., on Tuesday, June 8th, Dr. Jesse Dwight Bacon, aged eighty-three years. **Bogie.**—In Ardmore, Okla., on Saturday, May 29th, Dr. William T. Bogie, aged sixty years. **Bower.**—In Sheridan, Ill., on Thursday, June 10th, Dr. Reuben W. Bower, aged seventy-six years. **Briggs.**—In Woodburn, Ky., on Monday, June 7th, Dr. John M. Briggs, aged seventy-five years. **Cates.**—In Minneapolis, Minn., on Thursday, June 10th, Dr. Abraham B. Cates, aged sixty-one years. **Corbin.**—In Brooklyn, on Monday, June 14th, Dr. Job Corbin, aged eighty-one years. **Cornish.**—In Baltimore, Md., on Wednesday, June 9th, Dr. Liberas Cornish, aged eighty-four years. **Dickey.**—In Lima, Ohio, on Wednesday, June 9th, Dr. Ross V. Dickey, aged forty-five years. **Earle.**—In Los Angeles, Cal., on Saturday, June 12th, Dr. Charles H. Earle, aged fifty-four years. **Forbes.**—In Lynchburg, Va., on Thursday, June 10th, Dr. Herbert O. Forbes, aged thirty-seven years. **Frost.**—In Danvers, Mass., on Friday, June 4th, Dr. Woodbury G. Frost, aged seventy-seven years. **Gants.**—In Cromwell, Ind., on Sunday, June 6th, Dr. John Gants, aged eighty-three years. **Graves.**—In Valentine, Texas, on Monday, June 7th, Dr. George Berry Graves, aged thirty-four years. **Guthrie.**—In Evanston, Ill., on Friday, June 4th, Dr. J. B. Guthrie, aged forty-five years. **Hall.**—In Houston, Texas, on Wednesday, June 9th, Dr. George P. Hall, aged fifty-eight years. **Hanawalt.**—In Kansas City, Mo., on Saturday, June 5th, Dr. Henry O. Hanawalt, aged seventy years. **Janes.**—In Waterbury, Vt., on Thursday, June 10th, Dr. Henry Janes, aged eighty-three years. **Kneale.**—In Anderson, Ind., on Tuesday, June 8th, Dr. William Wabash Kneale, aged fifty-four years. **Mayberry.**—In Mechanic Falls, Me., on Friday, June 11th, Dr. F. E. Mayberry, aged eighty years. **Mitchell.**—In Brunswick, Me., on Sunday, June 13th, Dr. Alfred Mitchell, aged seventy-eight years. **Monory.**—In New York, on Wednesday, June 16th, Dr. Leon O. Monory, aged sixty-nine years. **Stettler.**—In Philadelphia, on Tuesday, June 8th, Dr. William Henry Stettler, of Spinnerstown, Pa., aged forty-six years. **Stutson.**—In Columbus, Ohio, on Saturday, June 12th, Dr. Orin H. Stutson, aged forty years. **Worthen.**—In Barre, Vt., on Sunday, June 13th, Dr. Hiram Owen Worthen, aged seventy-seven years.

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